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ORIGINAL ARTICLES.

THE FRESH AIR TREATMENT OF SURGICAL TUBERCULOSIS.[1] [2]

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IT is with considerable trepidation that I speak to you to-night on the subject of tuberculosis. For speaking upon any phase of this broad subject I apologize most humbly. I have nothing new to offer, nor have I any elaborate or scientific report, but I will confine myself only to the treatment and to the Fresh Air Treatment of Surgical Tuberculosis in Children, with especial attention to the work that is being carried on by the New York Association for Improving the Condition of the Poor at its temporary hospital at Coney Island.

You are all familiar with the treatment of pulmonary tuberculosis according to the methods outlined by Brehmer, Dettweiler and Trudeau, and the strict hygienic rules laid down by them. But I think that some of you are less familiar with the application of these same principles in the treatment of surgical tuberculosis.

Through the efforts of Bergeron[1] in France, the first hospital at Berck sur Mer was begun in 1861, and the original hospital of 100 beds has been enlarged to accommodate 600, and since then other hospitals have been built there and elsewhere in France.

Cazin,[2] in 1885, published the results of thirteen years' experience at Berck, and the results were very satisfactory. Since this beginning there have been built in Germany, Austria, Belgium, Holland and in Italy sanatoria for the treatment of surgical tuberculosis in children, the majority of them being on the seashore. England has only Margate, built in 1796, for pulmonary as well as other forms of tuberculosis.

The French writers speak enthusiastically of the results, claiming (d'Espine[3]) 93 per cent. successful cases at Asile Dollfus and 87 per cent. successfully treated cases at St. Pol. In 1900, d'Espine,[4] of Geneva, said "Everyone is agreed that salt air and sea-baths constitute the best treatment for scrofula."

In 1902, Tubby[5], in London, compared the cases treated in the London hospitals and those treated at Sevenoaks, at a hospital where hygienic measures could be satisfactorily carried out. He concluded that it was not justifiable to treat these cases in the city. It has gradually become recognized that country air is needed, and by some that the sea air is better. The importance of fresh air, rest, good food and sunshine is mentioned in the most modern books on surgery, and orthopedics and particularly emphasized by Gibney and Whitman[6] in this city in the treatment of surgical tuberculosis. In a paper read before the section on surgery of the Academy of Medicine, in the winter of 1903, Knopf[7] insisted on this treatment of surgical tuberculosis, especially in postoperative cases, and strongly urged the establishment of sanatoria for this purpose at the seashore. In this country there has been little sanatoria treatment for surgical tuberculosis. The fresh-air treatment of septic cases was commenced about thirty years ago at the Boston City Hospital, and, so far as I know, was the first treatment of the kind for any septic cases. Lately Burrell[8], of that city, has successfully treated numbers of cases of surgical tuberculosis by treating them on the same general plan as consumptives. Some of our hospitals in this city where surgical tuberculosis is treated, have country homes where postoperative cases are sent to convalesce, they also make use of the various summer homes and floating hospitals near the city, but the accommodations for them are far too small.

During 1903 some of the Board of Managers of the Association for Improving the Condition of the Poor felt that the time had come for the establishment of a maritime sanatorium for surgical tuberculosis. In the summer of 1903, Mr. J. S. Ward, Jr., of the Association, visited all the important sanatoria in France, and returned, making an enthusiastic and satisfactory report of the results obtained in France.

During the winter of 1904 the Association appropriated sufficient funds to build a tent camp at Coney Island upon rented land in close proximity to their Fresh-Air Home, "Sea Breeze." The tents were opened on June 6, 1904, with some 20 patients. There were, of course, considerable difficulties, as with every new institution. Hospital management and tent life were not very familiar, but, notwithstanding many trials, the scheme was satisfactorily pushed through. The tents suffered from lightning and wind, and on an afternoon in August they were all unroofed, and two of them demolished during a violent thunderstorm. The Association had appointed a medical advisory board, consisting of Dr. W. B. James, chairman; Dr. John W. Brannan, of New York City; Dr. L. F. Flick, of Philadelphia; Dr. E. L. Trudeau, of Saranac Lake; Dr. Hermann M. Biggs, Dr. Virgil P. Gibney, Dr. Newton M. Shaffer, and Dr. E. G.

[1] Read before the Academy of Medicine, January 19, 1905.
[2] With especial reference to the work being carried on by The New York Association for Improving the Condition of the Poor, at its Seaside Hospital, Coney Island, N. Y.

Janeway, of New York City, who gave wise counsel and personal effort to make the venture a success. Much credit is due especially to Dr. Brannan, who gave much time and almost daily valuable advice in all matters. With the advent of the fall, the association felt that the experiment had been so far successful, yet realized that in order to prove it beyond criticism the work should be continued during the winter. The Association did not desire to run a hospital further than to prove this point, and the question was first raised, "Is there any conceivable way of continuing the work for the winter?" But as October drew near the question became, "Have we the moral right, after the short period of upbuilding, to condemn those children to the undermining conditions of their homes, or even to the best indoor hospital life that can be provided within the city limits?" Letters were written on behalf of the association by Dr. Brannan[9] to the various members of the Medical Advisory Board asking if, in their opinion, there would be any danger to future occupants if these cases of surgical tuberculosis occupied one of the Association buildings at Sea Breeze (the Fresh-Air Home). The answers were unanimously negative, Dr. Biggs[10] saying: "Of course any statements as to there being danger to the other children next summer from their presence in the building during the winter is perfect nonsense. I should have no hesitation whatsoever in saying this with the utmost emphasis." The Board of Managers of the Association then decided to use the so-called service building at Sea Breeze for winter quarters. This building needed but a few alterations, including the installation of a heating plant, and it was ready for use, and the treatment there is being carried on in the same manner as at the Tent Camp.

The treatment of surgical tuberculosis is hygienic, medical and surgical, and I can best describe it by telling of the treatment being carried out at Coney Island. The children are treated much like pulmonary cases as regards fresh air, good food and an abundance of it, and rest. During the summer the tents were always open, and various adjuncts to ventilation were carried out according to suggestions made by Drs. James and Biggs. The children were also given daily sea-baths until October, when the air and water grew too cold. The windows in the wards are kept always open except for a half hour before and during the time the children dress and undress.

The children spend the entire daytime out of doors, except for meals. Since the opening of the school term, the Board of Education has given us the services of a teacher, who holds school for the older children. The most any child has is two hours, five days a week, and only one hour continuously, in a bright, airy room. Those children that are able, have calisthenic exercises out of doors. The morning lunch, consisting of crackers and milk, is taken out of doors.

If for any reason a child is unable to run about, he is kept in his crib, but out on a bright, sunny piazza, and not exposed to the wind. During the cold weather the children are warmly clad. At night they wear outing flannel nightgowns, knitted wool slippers, hoods and flannel jackets. These measures keep them perfectly warm. During the day they do not complain of cold, the circulation being good in almost all of these surgical cases, and the association is able to supply them with suitable clothing, which is so often lacking in our charitable institutions for pulmonary tuberculosis.

Considerable stress is placed upon the care of the mouth and teeth. The children brush their own teeth under supervision, twice daily, using a good tooth powder. The services of a dentist are also called in when necessary. The children take good care of their noses, and are taught to use gauze handkerchiefs, which are all burned after use. Strict regard is also paid to cleanliness and to the care of the skin.

The food is of the very best, and a good, substantial, varied diet is given, such as is suitable for children. Soups, milk, eggs, plain meats and vegetables forming the main articles of diet.

The daily routine is as follows: 6 o'clock, windows closed by night nurse; 6.30 to 7, dress; 7, breakfast; 7.30 to 9, outdoors; 9 to 10, school for older children (5 to 12); 10 to 10.30, lunch; 10.30 to 10.45, singing; 10.45 to 11.15, school; 11.15 to 11.30, exercise out of doors; 11.30 to 11.45, school; 12 M., dinner; 12.30 till dark, out of doors, at present till about 4 P.M.; 2 to 2.45, teacher gives a few backward pupils fifteen minutes each; 5 P.M., supper; 6, smaller children to bed; 7.30, larger children to bed.

Dietary.—Breakfast, 7 A.M., farina or one of the following: Flaked rice, wheat biscuit, hominy, malta vita; cocoa, milk, bread and butter; minced beef or soft boiled egg.

Lunch, 10 A.M., crackers, soda or Graham, and milk.

Dinner, 12 M., soup; beef or other broths; meat; roast beef, lamb, chicken, stewed beef, stewed lamb, or fresh fish; vegetables: potatoes, and two others; beans, peas, lettuce, tomatoes, macaroni, or rice. Dessert: Ice cream twice a week or milk puddings; bread and butter and milk.

Lunch, 3 P.M., crackers and milk.

Supper, 5 P.M., gravy, bread or milk toast; stewed fruit, pears, blackberries, raspberries, plums, or peaches; bread and butter.

The children in good health, especially those who do not have joint disease of the lower extremity, have considerable freedom as to play outdoors, and it agrees with them. Those wearing braces and some of the cases of Pott's disease take enforced rest, sometimes dressed, and sometimes in their cribs on the piazza.

Not believing in any specific medicine, no special plan of medical treatment has been adopted. The use of tonics, such as arsenic and iron, has

been given a trial, in certain cases with apparent benefit, and some cases which have not gained satisfactorily in weight have been given cod-liver oil and Russell's emulsion.

The surgical treatment is conservative and under the advice of the Advisory Medical Board. The necessity for absolute asepsis is well realized, and in the dressing of even a small sinus the utmost pains are taken and thorough cleanliness insisted upon.

The treatment of tuberculous wounds has been given too little attention, but the recent knowledge that they heal comparatively quickly, provided they do not become infected with pyogenic organisms, should enable us to give these wounds better care.

The bacteriological findings in opened and unopened tuberculous abscesses has been ably demonstrated by Petroff[11] and others, and there is now no excuse for lack of asepsis in the case of tuberculous wounds. The point has been too often overlooked.

The orthopedic treatment I need not go into further than to say that it is carefully carried out by Dr. Charlton Wallace, under the supervision of the Advisory Board.

The question you now ask is, "What are the results after carrying on this work for seven months? I do not intend at this time to give you a detailed report of cases cured and improved, nor do I intend to give you the gains in weight. I only will tell you that the results are remarkable, the cases have, almost without exception, improved, though we have cared for every variety of case, the far-advanced as well as the incipient, the latter cases doing better than the advanced. One infant aged two years came to us in June with, apparently, tuberculous peritonitis, his parents refusing operation. He was discharged much improved the last of September. He was examined January 14, and was found to be apparently in perfect health, the signs of fluid in the abdomen having disappeared. Another boy with hip disease and abscess has what we have diagnosed as anyloid disease of liver and kidneys. He has improved somewhat and we do not as yet despair of his recovery.

Now you may ask, what is the cost of this experiment? Naturally large. The total cost while at the tent camp was $12,056.84, accommodating 54 children.

The daily per capita cost from June 6 to September 30, inclusive, including cost of construction, equipment and repairs, was $2.44, exclusive of equipment, construction and repairs, $1.13. Total number of children, 63; 4,926 days.

The daily per capita cost for November at "Sea Breeze" was $1.45. There is no cost of construction or rent in this building, 35 children for a total of 915 days. The daily average per capita cost for December was $1.32 for 31 children for a total of 953 days. A large item of expenditure during these two months was for coal, which could be diminished, if coal could have been bought earlier and in bulk.

Does it Pay?—I think so, decidedly, even at a far greater financial outlay. If you could have seen the children in June and see them now, you would believe that almost any expense to demonstrate the improvement in those poor children was decidedly worth while.

For those of you who are interested in surgical tuberculosis I wish you would see the results for yourselves, for seeing is believing. Visit the wards of any hospital in the city and see the poor children suffering from various forms of external tuberculosis, then take the trouble to visit the children at Coney Island. You will be amply repaid for your trouble. I know of no other way for you to realize how good the results are. Ten of the children, discharged in October, reported for examination January 14. They had all maintained their good health and all but one kept or gained in weight.

I think that the Association has proven definitely that there is but one treatment of surgical tuberculosis, namely, constant fresh air, not neglecting orthopedic and conservative surgical treatment, and that the sea air is the best, we believe, though we cannot prove.

The time has come that some definite action should be taken for the establishment of a permanent seaside sanatorium for the treatment of the 3,000 to 5,000 poor children of this city afflicted with surgical tuberculosis. New York is foremost in the prevention and treatmest of pulmonary tuberculosis, and foremost because of a most efficient Board of Health. The Board of Health still hopes for a municipal sanatorium for consumptives, but is unable to obtain a suitable site owing to the Goodsell-Bedell bill. Sites, however, for a suitable sanatorium for surgical tuberculosis are available within the city limits. I hope that the day is not far off when we can have such a sanatorium for the city, preferably under municipal control.

I thank you for the honor you have done me in listening to my paper.

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A Physician as a Deputy.—At the recent supplementary elections in Italy, Dr. Giovanni Battista Quierolo, professor of Clinical Medicine in the University of Pisa, obtained a seat in the Chamber of Deputies. Professor Quierolo is one of the leading physicians in Italy.

AURAL AFFECTIONS IN CHILDREN; NECESSITY FOR THEIR EARLY RECOGNITION BY THE FAMILY PRACTITIONER.[1]

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CHILDREN and infants being susceptible to the exanthemata, intestinal disorders and various inflammatory disturbances, are naturally subject to the ear conditions which complicate and follow in the wake of these affections. The family practitioner is usually the first to be consulted, and a prompt recognition of an aural disturbance, admits of immediate treatment with relief to the patient, and a consequent freedom of subsequent embarrassment to the doctor.

In considering the subject generally, we might divide the whole into two types, the inflammatory and the non-inflammatory.

The inflammatory type consists of the ear conditions in those who complain, or where there is evidence of pain or of a persistent unaccountable fever. In this category belong all cases of exanthemata, intestinal and respiratory disturbances, in fact all febrile affections.

In the second class belong all those that are caused by pathological conditions in the nose, throat, and mouth. Thus are included nasal obstructions, as exostoses, foreign bodies, deviated septi and polypi; throat conditions as enlarged tonsils, adenoids, edema, abscesses and ulcerations and oral affections as dentition and decayed teeth. Here also belong neuralgias due perhaps to exposure, malaria, rheumatism, etc.

The family doctor being called to see a child or infant with any acute inflammatory trouble should not consider his examination complete without including the ears. This is usually, except in very young infants, easily accomplished. Any furuncle in the external canal is readily seen. To examine the middle ear a large sized speculum is generally the best, except, perhaps, when viewing the extreme upper part of the drum membrane, then a small one is very often preferable. The warmed instrument is inserted with a gentle rotatory movement, the auricle in older children is drawn backward, whereas in infants, it is drawn downward and one must look upward. This straightens the canal, which must be cleared of any discharge, epithelial flakes, cerumen, or vernix to obtain a distinct view. Sometimes the drum membrane may appear white from exfoliated epithelium or discharge. This can be easily discovered by wiping with a cotton-tipped applicator when the reddened membrane will appear.

There may exist two types of inflammation, either catarrhal or purulent. In the catarrhal variety the symptoms are milder usually. The membrane may be reddened with slight or marked degree of swelling, caused by the inflammatory exudate. Sometimes it is of a peculiar yellowish color through which the level of the exudation may be seen. The symptoms in the purulent variety are generally more marked. The upper part of the membrane becomes hyperemic, the congestion extending down along the malleus handle gradually the whole membrane becoming involved, edematous, swollen and all the landmarks obliterated. The pus occasionally burrows between the mucous membrane and the bone.

In the mild catarrhal variety the process may end and the inflammatory products may become absorbed. Not so, however, in the severer or in the purulent variety. Here, unless paracentesis is performed, either the membrane ruptures spontaneously with a large enough opening to admit of drainage or else an extension of the process takes place.

From the anatomical structure of the child the pathological process may involve the meninges through the partially ossified sutures or from the prolongation of the dura mater which lines the upper part of the cavity. Thus the brain may be infected with abscess formation. Internally through the fenestra rotunda and ovale the labyrinth may become affected, causing partial or complete mutism. Below, through a thin plate of bone which is occasionally absent, the jugular bulb may become infected and pyemia ensue. Backward, the mastoid process and the lateral sinus may become the seat of purulent infection.

A discharging ear must be attended to, and always regarded as a menace to life and health. Mastoid involvement may be suspected if the discharge is excessive and does not improve under treatment, if a swelling appears back of the auricle, causing its projection, one beneath it along the sternocleidomastoid, a continued temperature, constant pain or continued tenderness over the bone. An irregular fever with systemic disturbance occasionally will denote an infection of the jugular bulb, or of the lateral sinus.

In all cases of earaches the membrane must be examined and if normal the nose and throat and nasopharynx should receive attention. Decayed teeth or dentition is a very common cause. Adenoids and enlarged tonsils frequently cause recurrent earaches.

Backward children should be examined to see if there is a loss of hearing power and the cause removed if possible. Foreign bodies are quite frequently found. If the case belongs to the class of nasal and throat troubles a retracted drum membrane will exist and the parents should be warned that if not attended to the condition will grow worse and may become permanent.

It is impossible in a short paper to consider the symptoms in the various kinds of cases, except in a general way. With middle ear involvement the patient may or may not complain of pain, be restless, put its fingers to its ears, bury its head in the pillow, or show an increase in temperature.

[1] Read at the Meeting of the Society of the Alumni of the City (Charity) Hospital, December, 1904.

Prompt paracentesis has cured what appear to be attacks of meningitis, pleurisy, pneumonia, typhoid, colitis, malaria and various other diseases. In the exanthemata, especially scarlet, where aural mischief is rapid and severe, repeated examinations should be made. Any unexpected or continued rise of temperature during a febrile disease, or any unusual restlessness should attract attention to the ears.

In looking over my records at the Sydenham Hospital Dispensary I find about 33 per cent. of the ear patients were children under fourteen years of age, half of whom were suffering from suppurative ear troubles. Of the adults 25 per cent. were suffering from ear trouble contracted during childhood from suppuration or the so-called chronic catarrhal condition, due to the neglect of the nose and throat in their early years.

Any swelling of the drum membrane, especially in its posterior part, calls for a paracentesis. It should not be allowed to rupture spontaneously as the opening may not be sufficient for drainage, and may have to be enlarged and also because a clean cut wound heals easily and prevents loss of hearing power.

In concluding, I wish to draw attention to the following:

1. That an early recognition of an ear affection may prevent pus formation which in children proceeds rapidly.

2. If pus has formed, the attention to it may prevent its toxic absorption.

3. Early paracentesis may prevent extension from the tympanum to the mastoid cells, brain, internal ear, and sinuses as well as the partial loss of audition.

4. Partially-deaf children should have the nose and throat examined and pathological conditions removed.

5. All cases of earache and discharging ears should be properly attended to.

6. In all inflammatory diseases children's ears should be repeatedly examined during the course of the disease.

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THE WIDAL TEST FOR PRACTISING PHYSICIANS.[1]

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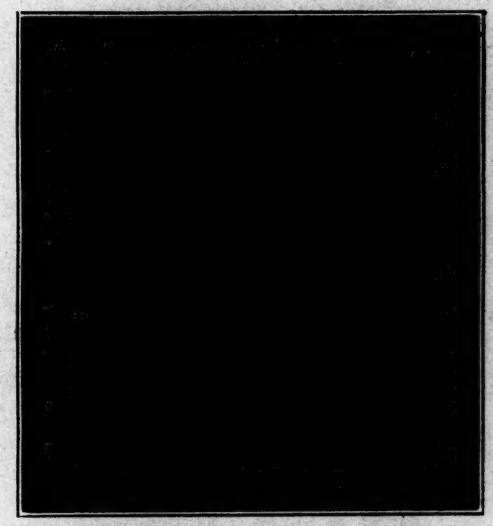
Since the demonstration of the value of Widal's test as an aid in the diagnosis of typhoid fever, various modes of applying it have been in vogue. Dried blood has been used largely for clinical work. For scientific study, the separated serum which permits more accurate dilution, has been employed. Hanging drop preparations observed with a high power of the microscope have been as a rule a part of the clinical technic. Until recently no method which could be applied readily and safely by each physician to his own cases had been suggested, but within the past few years several attempts have been made to introduce a macroscopic Widal test. In each instance the advantages claimed have been: (1) Ease and simplicity of technic; (2) independence of the microscope; (3) the use of a permanent suspension of dead bacilli.

In April, 1902, Pröscher[1] described a new Widal technic. He used an emulsion or suspension of twenty-four-hours bouillon-grown bacilli killed with formalin. This he mixed with the diluted serum in little transparent dishes, set them in the incubator at 37° C., and at the end of an hour or two observed the result with a low power of the microscope. The method is hardly adapted to use outside of a laboratory.

Fig. 1.



Different Stages of the Reaction.—Dilutions—Tube 1, 1/200; 2, 1/100; 3, 1/50; 4, 1/25; 5, 1/10. These five tubes have stood at room temperature for five hours. Tube 6 represents a completed reaction. Tube 7, a control made with normal serum in a dilution of 1/10. The control has stood twenty-four hours. Note the haziness as contrasted with the completed reaction. Photographed by Dr. A. J. Brown.

In 1903, Ficker,[2] of Darmstadt, published a notice of a typhus diagnosticum devised by him and possessing all the advantages of general availability suggested above. He failed to state how he prepared the suspension which was the essential feature of his method, but intimated that it involved a lengthy and complicated process and that it would not be wise for others to try to make a similar solution. Ficker gave no reports of cases in which his diagnosticum had been tried but said it had been used with success.

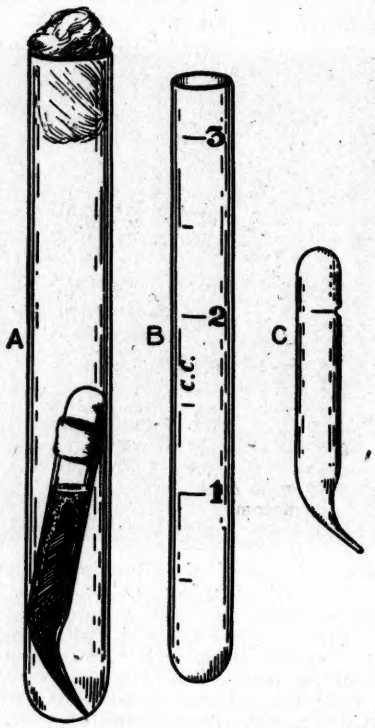
In August, 1904, Walter[3] reported a series of 22 cases tested with Ficker's diagnosticum. Of these, 15 caused agglutination in high dilution,

[1] Read before the meeting of the New York Pathological Society, October 12, 1904.

Of the 15, 12 were undoubted typhoids, 2 were probably typhoid, and 1, which reacted only in a dilution of 1:50, gave no other sign of typhoid fever. The remaining 7 non-typhoid cases did not react. All of the cases were tried at the same time by the usual microscopic method and grossly with a solution which Walter made with agar-grown cultures suspended in a mixture of salt solution, glycerin and carbolic acid. The results of the three methods coincided.

Ruediger,[4] in a recent number of the *Journal of Infectious Diseases,* reports a long series of gross reactions done with formalinized emulsions

Fig. 2.



A—Small test tube containing the collecting bulb filled with blood. A convenient method of transporting. *B*—Graduated test tube for rapid dilution. *C*—Collecting bulb showing vent and file mark for breaking end.

and states that certain typhoid sera diluted 1/20,000 caused visible agglutination in 5 to 8 hours. This is perhaps possible, but after our experience with formalinized cultures it seems likely that owing to insufficient control work he was deceived by albumin precipitations.

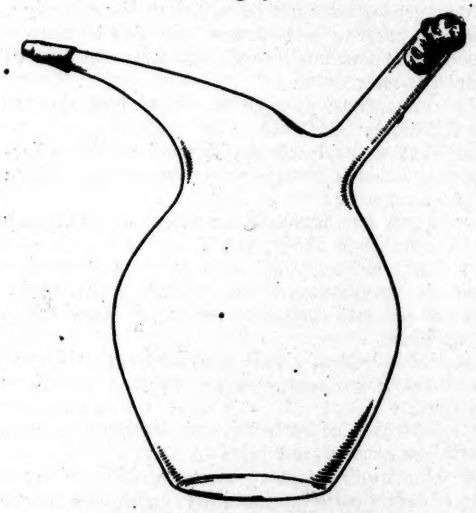
Buxton[5] also has met with success while using cultures of bacilli killed with formalin.

Rolly[6] has worked to advantage with a solution in which the organisms are killed with formol or toluol. The preparation of Rolly's emulsion necessitates several weeks' time and much care.

Graman[7] and Kasarinow[8] have reported favorably on Ficker's diagnosticum.

Early last spring, in the Presbyterian Hospital laboratory, we began working with suspensions of typhoid bacilli which had been killed with formalin. With one particular stock of solution we met with marked success, testing a large series of cases of typhoid fever and thoroughly controlling the work with many different non-typhoid sera. All the typhoid cases agglutinated our formalinized emulsion and only two of over 100 different control sera caused apparent clumping within the three-hour time limit. One of these cases had certainly had typhoid fever, the other possibly. An approximate dilution of 1/100 was used in each case and if there was no clumping visible to the naked eye at the end of three hours the result was considered negative. The average day of reaction was the seventh to

Fig. 3.



Dropping bottle for sterile salt solution.

eighth day of the patient's sickness in bed. Many of the control tubes showed clumping on standing six to twelve hours.

We never made another formalin solution which abundant control work did not prove unreliable. We attributed this to the instability of the formalin and to the fact, pointed out by Gatrona[9], that this reagent in the presence of a very slight trace of acid constitutes one of our most delicate tests for albumin.

After several further unsuccessful attempts to compound a satisfactory suspension, we made one in the following manner:

A well-tried strain of typhoid bacilli is grown for twenty-four hours on slant agar in large tubes.

The bacilli are washed from the medium with a mixture of sterile salt solution, 450 parts, glycerin, 50 parts, 95 per cent. carbolic acid, 2.50

parts. Fifty c.c. of the solution are sufficient to wash one large agar tube.

This solution is at first cloudy, but after standing for one week becomes translucent and the bacilli on being transplanted fail to grow. It is then ready for use, and is permanent if kept in sterile bottles in a moderately cool and dark place. The small percentage of carbolic acid, equal to 1/200, renders contamination difficult, and the glycerin by increasing the specific gravity serves to keep the bacilli in suspension. The stock bottle should be shaken occasionally.

With such a suspension and five others prepared in the same way, 30 cases of typhoid fever and 27 controls were tested. Of the 30 cases, 29 agglutinated in an accurate dilution of 1/100. The one case which failed to clump died in the second week after his blood had been twice tested. None of the controls reacted with the serum diluted only 1/40. The controls included 3 cases of nephritis, 2 of malaria, 1 of appendicitis, 2 of tuberculosis, 1 of abscess of the liver, 1 of cholelithiasis—both with jaundice—and several surgical cases. The reaction if positive occurred within twenty hours. Six controls stood for eight days without apparent change of any sort, and many others from forty-eight to seventy-two hours. The average day when the reaction was obtained first was the patient's seventh day in bed. Four reacted on the second day in bed, 1 on the third, and 1 on the fourth. Twenty-five cases were positive on the first examination,—the earliest possible on admission. The different solutions were uniform in their susceptibility to agglutination except that one made with bacilli grown for eight days was much slower in reacting than the others. Coincident examinations using Ficker's diagnosticum and the microscopic method gave similar results. Ficker's suspension was slower and less delicate, doubtless because his diagnosticum is less dense. At the expiration of three months' use the solution reacted as well as on the first day. Our technic has been the following: All tubes and pipettes are cleaned before using with water, alcohol and ether.

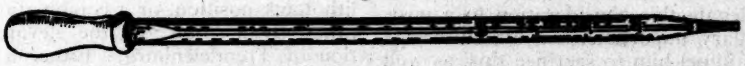
1. The blood is collected in bulbs with a small vent-hole at one end and drawn to a capillary tube at the other. (Fig. 1 C.) It is only necessary to prick the ear rather briskly with a Hagedorn needle and keep the tip of the bulb to the exuding drop. Milking (not squeezing) the lobe of the ear will facilitate the flow of blood. When the bulb is two-thirds full, it is held for one minute in a slanting manner and laid aside for one to two hours. At the end of this time about 0.2 c.c. of serum will have separated. By covering the vent-hole with a broad elastic band the bulb may be carried any distance. The point is sealed by the drying of the blood in it.

2. From a modified Shuster dropping-bottle with a very small lumen in the spout, a small graduated test tube is filled to the 1 c.c. mark with sterile salt solution. The large end is broken from the bulb at the file mark and with a capillary tube drawn to a long point and graduated in one-hundredths of a c.c., enough serum is drawn up to make with the salt solution the dilution required. The pipette with the contained serum is then inserted into the test tube and thoroughly washed out with the salt solution.

3. From another dropper enough of the typhoid suspension is added to bring the fluid in the test tube to the 2 c.c. mark. The mouth of the tube is then stopped with a plug of non-absorbent cotton, inverted once or twice and set aside in a dark place.

Within one-half hour to twenty hours, if the reaction is positive, depending upon the dilution of the serum used and its agglutinating power, a marked granularity of the fluid in the tube will be noted. Following this there will be seen distinct clumps beginning to sink toward the bottom, and at the conclusion of the reaction, the fluid above will be limpid and free from clumps and the point of the test tube will contain a small, white, flocculent, mass of agglutinated bacilli.

Fig. 4.



Graduated pipette.

In conclusion:

1. The method is to be adapted to use by the practising physician because its technic is simple and free from danger, and because the reading of the reaction is absolute. It is either positive or negative. For the diagnosis laboratory it seems specially fitted because requiring so little time for its application.

2. It is possible that a similar suspension of appropriate bacteria may be used in the diagnosis of diseases other than typhoid fever.

3. The methods of collection and dilution here suggested are thought to be simpler and more rapid than those heretofore employed.

Finally, I wish to thank Dr. T. Hastings for valuable suggesions, and Miss Selma Granat, of the Prebyterian Hospital laboratory, for material aid in preparing the suspensions.

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THE TECHNIC OF PERINEAL PROSTATECTOMY.[1]

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HOWEVER well founded the claim that the suprapubic or intravesical route is the one of choice in prostatectomy, it must be acknowledged by the most ardent advocates of this method that there are cases to which the perineal route is best suited. In fact, no hard and fast rule can be laid down in this respect, but it is the belief of the writer that the great majority of cases of hypertrophy of the prostate can be most easily reached and safely dealt with by the natural route of the perineum. Without entering into an elaborate argument upon this phase of the subject at this time, it will suffice to call attention to the following:

1. Intravesical enucleation will almost necessarily demand total enucleation. A conservative operation designed to spare the ejaculatory ducts in younger subjects is scarcely possible by the suprapubic route. This is the more important since there is a growing belief among progressive surgeons that the best results will be ultimately obtained by instituting operative interference earlier in the case than in the past, in which case a preservation of the sexual function will present a far more important phase of the subject than at the present time, when either the patient's age is such as to relegate this consideration to a position of secondary importance, or his sufferings so great as to impel him to sacrifice this, as well as everything else, in the effort to obtain relief. In the perineal operation, on the other hand, either an enucleation, or a resection of the lateral lobes with preservation of the parts adjacent to the urethra together with the ejaculatory ducts is possible.

2. The perineal is the natural route, both anatomically and physiologically. The prostate is not an intravesical organ in any sense, and both freedom from urinary extravasation and infection, as well as drainage, are best accomplished by this route. In the case of the suprapubic intravesical operation the ease with which the capsule is entered depends upon a problematical thinning of this structure at the points of union of the lateral lobes above and below the urethra. On the other hand, the capsule can be entered anywhere by the perineal route, and the "shelling out" process carried on from the direction which proves the easiest of accomplishment.

3. It is possible to perform a relatively complete prostatectomy by the perineal route without entering the urethra. A simple tampon of gauze in the wound will enable the patient to sit upright in from twenty-four to forty-eight hours following the operation, a most important point in the after treatment, particularly in the more elderly patients. Even in cases in which the urethra is opened this course may be followed in selected cases. At the most the presence of a drainage tube for forty-eight hours will suffice. Further, with traction properly applied, it will not be necessary to make pressure from the rectum in perineal prostatectomy, as is frequently the case when the suprapubic method is employed. The gain from the aseptic point of view in the case of the latter is worthy of note.

4. The fears of infection of the deeper pelvic planes is an ever present one when the suprapubic method is employed. While it is true that a skillful operator may in time acquire the dexterity of a Freyer, and enucleate the prostate in a comparatively large number of cases without tearing through the prostatic capsule proper other than at the points mentioned (*vide infra*), yet it is more than likely that many lives will be sacrificed before this manipulative skill can be acquired by any considerable number of operators. On the other hand, while it is extremely desirable that the enucleation should be carried out without lesion of the capsule other than the opening made for the introduction of the finger, if this does occur no harm will result other than moderate bleeding from the prostatic plexuses lying between the fibrous sheath derived from the pelvic fascia and the true capsule of the organ.

The steps of the operation include the following: The patient is placed in the exaggerated lithotomy position, or a combination of the usual lithotomy position and the elevated pelvis position of Trendelenburg. Either a general anesthetic or spinal analgesia may be employed. M. B. Tinker employs local eucaine or cocaine anesthesia by infiltration and intraneural injections at the ischial tuberosity, anesthetizing the internal pudic and long pudendal nerves. The bladder is irrigated beforehand, and, if resection or partial prostatectomy is to be attempted, the largest possible soft-rubber catheter introduced and left *in situ*. If enucleation is intended a lithotomy staff is introduced. The incision is carried from the root of the scrotum to the external sphincter of the anus. If the prostate is deeply placed the additional branching incisions passing in the direction of the tuber ischii, constituting the ⅄ (inverted Y) incision of Young, are made. If enucleation is to be performed the urethra is to be opened upon the staff. If resection is to be performed the opening of the urethra is to be omitted and accidental injury of this structure avoided. In enucleation the prostatic capsule is incised transversely at the point where this lies adjacent to the membranous urethra, and the finger entered at this point for shelling out both lobes. In resection the perineal fascia is split and the posterior part of the gland exposed by blunt dissection. The wound edges are well retracted and the capsule incised at a distance of six millimeters from the median line upon either side, in order to preserve the ejaculatory ducts, and at the same time guard against injury of the urethra.

In enucleation, once the capsule is entered the

[1] Read before the Medical Society of the State of New York, February 1, 1905.

mass is slowly worked loose by the finger tip. The latter readily recognizes the feel of the capsule, and the process of intracapsular enucleation is somewhat comparable to turning an orange out of its enveloping rind. In resection the separation of the capsule is stopped at the proper distance from the urethra and a long clamping forceps applied to the mass parallel with the latter; the loosened portion is then resected (Rydygier). This is repeated on the other side. The bleeding from the divided prostatic mass is slight.

In the operation as thus outlined it will be noticed that no reference is made to methods of making traction upon the organ to aid the enucleation or resection. I do not believe that any appliance employed to make traction from within the bladder is necessary, and that certain of these may be responsible for the paralysis of the vesical sphincter so frequently observed. It is my own practice to grasp the corresponding lobe through the opening in the capsule as soon as sufficient has been exposed for the purpose by means of a double tenaculum forceps. Once this has been done the control of the situation is absolutely in the hands of the operator.

The after-treatment of perineal prostatectomy is simple. Tamponade of the wound without reference to any injury of the urethra, avoiding the use of a perineal drainage tube entirely; the preservation of cleanliness by frequent changes of the soiled dressings and irrigation of the wound surfaces; and, most important of all, getting the patient out of bed and sitting up at the earliest possible moment, embrace, in the main, the indications. If a drainage tube is employed it should be removed not later than forty-eight hours.

SUPERFICIAL INGUINAL HERNIA, WITH REPORT OF A CASE.[1]

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SO MUCH has been written concerning hernia that it would seem the subject had been exhausted, and had become devoid of any attractions. But the more unusual forms always excite interest and certainly merit a description, especially if, as in this instance one more case of superficial inguinal hernia is added to the comparatively small number reported. Undoubtedly more cases have been observed than one would be led to believe from the number one finds recorded in literature. For this reason it would be inaccurate to base a percentage of occurrence on the cases we find described and reported.

In a paper published in the *Annals of Surgery* (June, 1903), Coley records 937 cases of inguinal hernia, and of this number five cases are mentioned of the superficial inguinal variety. No individual operator with the exception of Macready, reports as many as does Coley, who, as stated, reports five. Erdmann, in his article on Strangulated Hernia,[1] reports three cases. If we take Coley's statistics we arrive at a frequency of occurrence as represented by one to about 187. This proportion based on the experience of a single operator will not, however, stand the test of accuracy, and will not represent the true relative frequency, as can be readily understood.

Superficial inguinal hernia was first described by Küster in 1887, and in his first communication he describes three cases. The reported cases as far as I am able to find them are to be credited as follows: Küster 3, Hulke 1, Moynihan 1, Macready 6, Wahl 1, Goebell 1, Moschcowitz 1, Fano 1, Curling 1, Erdmann 3, Coley 5, and Warren 1. The case of Warren is included in a recent article on "Undescended Testicle," by Odiorne and Simmons.[2] Moschcowitz, in an article published in the *Medical Record* of January 10, 1903, adds to his series another case. He credits it to Salzman, who found the condition on autopsy. Thus we find including the Salzman case a total of 26 cases, not including the case herein reported. To Moschcowitz is credited the collection of 17 cases, to which number are to be added those of Coley, Erdmann, Warren and the one of the author. The total number of cases then is 27.

This hernia may be considered as a congenital variety, not in the sense, necessarily that it exists from birth, but that the conditions leading to its production are most favorable. In other words, the cavity of the tunica vaginalis remains patent and communicates with the general peritoneal cavity. With this non-closure of the vaginal process and the testicle lying in an abnormal position it is readily understood how a hernia may protrude into the open and receptive pouch.

Macready, in his Treatise on Ruptures, classifies superficial inguinal hernia among the interstitial herniæ, and gives the following variations as regards these: (1) The viscera may be placed between the parietal peritoneum and the fascia lining the abdominal muscles; (2) between the internal and external oblique muscles; (3) on the surface of the external oblique, between it and the skin. The relations in superficial inguinal hernia are as given in the third variety. The essential features of this type then, are a condition in which the hernia and testicle lie directly upon the aponeurosis of the external oblique and having a covering of only skin and superficial fascia. The infundibuliform fascia and the cremaster muscle are but little developed, which facts, perhaps, are in keeping with the etiology of the condition. A reference will be made to this point later on.

Eccles is authority for the statement that interstitial herniæ may be associated with imperfect

[1] Read before The Society of Alumni of Bellevue Hospital, New York, February 1, 1905.

[1] Medical Record, March 12, 1904.
[2] Annals of Surgery, December, 1904.

or abnormal descent of the testicle. On the other hand they may be found in males whose testicles have descended into the scrotum. Further, interstitial herniæ occur in females in a greater proportion than in males. The proportion, according to Langton's statistics is as two to one. In 129 cases of interstitial hernia, observed during a period of twenty-four years, Macready found that some abnormality of the testes existed in $73^4/_{10}$ per cent., and in $67^1/_{10}$ per cent. the testis was completely retained or had only partially descended. What proportion of superficial inguinal hernia is associated with imperfect descent of the testis I am unable to state accurately, but I think it may be safely said that nearly all cases have some degree of cryptorchism.

There are at least five varieties of inguinal hernia associated with imperfect descent of the testicle—bubonocele, scrotal, interstitial, cruroscrotal, and superficial perineal (Eccles). Of all the conditions found associated with imperfect descent of the testicle, hernia is the most frequent complication. Perhaps 50 per cent. of the cases are thus complicated. Of the varieties as given above, bubonocele is the most frequent form of hernia that is encountered, and it is the form which would naturally be expected, for it is but an earlier stage of several other varieties.

In trying to discover a possible explanation of this condition, a great number of theories has been expressed by various authorities, and this very fact of divers opinion, shows that as yet, none has been satisfactory or really meets the conditions. Sufficient it is, to state in the scope of this paper, that more than likely an abnormal development of the scrotal portion of the gubernaculum has something to do with its production and must be considered a factor in the genesis. By reason of this deficiency or insufficiency of the gubernaculum the protruding mass escaping through the external ring and finding its way into the scrotum blocked, goes in the plane of least resistance, or in other words, dissects between the skin and the aponeurosis of the external oblique. In addition we must take into consideration that in many instances of interstitial hernia there is to be found an abnormal development or certain retrograde changes in the structures forming the abdominal parietes. The fact that interstitial hernia occurs so frequently in females who have borne a number of children and in whom the musculature has become deficient and flabby, attaches special importance to this point. In males, then, given a tardy development in the muscular structures of the abdomen and a non-descent of the testis complicating, superficial inguinal hernia has at least a partial solution.

As to the proper procedure with imperfectly descended testicle complicating hernia, again there is a diversity of opinion. The remarks on this point are confined to adult cases. It is generally held that an abnormally placed testicle has no function, at least as far as the production of spermatozoa is concerned. Some there are who believe in the internal secretion of even an atrophied testicle and for that reason never remove it. Reports of single cases in which the testicles has been transplanted to a scrotal bed are to be found, and the results are seemingly satisfactory. On the other hand, more cases abound in which the testicle much atrophied has retracted after a time, to a position high in the scrotum, just outside of the external ring and even into the canal itself. In a review of these unfavorable cases, pain is a most predominant symptom. Some authorities are firm in the belief that if for any reason orchidopexy cannot be performed, as for example, by reason of a short cord, then the proper procedure is to replace the testicle into the abdominal cavity. This has the objection that the testicle may again find its way into the canal, with a recurrence of original conditions. Again, there are cases in which testicles placed in the scrotum by operative measures, have gone on to full development. Others again consider orchidectomy the proper procedure. In view of these conflicting observations, it is clear that no one plan can be formulated to apply to the treatment of all cases. In every case, peculiar and distinctive conditions obtain and operative measures must be employed as best suit the occasion. In cases of radical procedure on one side, there is the satisfaction of knowing that a single properly descended testicle of normal development will carry on the bodily functions. Given a much atrophied testicle, with a shortened cord, firmly adherent to the sac, there is to my mind, but one treatment—orchidectomy. Further, it is to be remembered, that an undescended testicle after the age of puberty, atrophies more and more, is a constant source of pain and is liable to undergo inflammation and malignant change.

To Dr. Ladinski I am indebted for the privilege of reporting this case. During his service at Gouverneur Hospital the patient was admitted and referred to me for operation:

Case.—S. M., twenty-seven years of age, was admitted to Gouverneur Hospital on the evening of September 20, 1904. He is married and the father of several children. Right scrotum has always been empty. Three months ago patient began to be troubled with a "rupture" on right side. This "rupture" has been getting larger, but never had caused any great amount of trouble. It was always reducible. The undescended testicle at times caused inconvenience. At 4 P.M. on the date of admission, after some heavy lifting, the tumor suddenly became larger and he was unable to return it as before. The tumor increased in size, became more and more painful, and he began to vomit. At this time he was brought to the hospital. The case was reported to me as a strangulated femoral hernia. The description of the House Surgeon was that a tumor about the size of a large fist occupies the region of the right ex-

ternal ring, somewhat above the usual location of an inguinal hernia and extends downward on the thigh to a point corresponding to the saphenous opening. The tumor is dense and the overlying tissues are very thin and somewhat movable. He gives the signs of strangulation. His temperature is 97° F. and pulse eighty. An examination some thirty minutes later revealed a tumor as reported, and the man presenting signs of strangulation. The tumor extends in part below Poupart's ligament, but upward pressure shows the femoral canal free, and the protrusion really comes from above the ligament. The right scrotal sac is empty. An incision four inches in length above and parallel to Poupart's ligament was made. Skin and superficial fascia having been passed through, the tumor presented itself as lying above the external ring and resting directly upon the aponeurosis of the external oblique. Inspection revealed that it was composed of intestine and a small almond-sized structure which upon later examination proved to be the testicle. The diverging pillars of the external oblique tightly encompassed the whole protrusion. The external oblique aponeurosis was the slit and the inguinal canal seemed entirely obliterated, that is, the internal and external rings were almost in a straight anteroposterior axis. The sac being opened the hernia revealed itself to be of the congenital variety. The point of stricture was found to be at about the site of what should be the internal ring and was due to a narrowing of the lumen of the peritoneal sac. The stricture was divided and the gut which showed signs of gangrene was treated with hot saline applications, and after about ten minutes, was deemed viable and was returned. Great difficulty was experienced in the attempt to separate the sac from the attenuated cord and atrophied testicle, and they were therefore sacrificed. The sac was ligated and returned to the abdomen. The steps of a Bassini operation were followed with the exception that there was no cord to deal with. The patient reacted well from the operation and made an uneventful recovery, being discharged on the twenty-first day.

The special point of interest attaching to this case, aside from its being of the rare superficial inguinal type, is the fact that on first examination it had all the aspects of a femoral hernia. The first diagnosis as reported to me, it may be inferred, was made without the careful examination which should always be made of a large hernia in the inguinocrural region. The ability to displace the mass above or below Poupart's ligament will establish the diagnosis as either inguinal or femoral hernia as the case may be. Macready moreover, has this to say regarding interstitial hernia: "The ventral swelling of interstitial hernia is not always confined to the area of the abdomen. When it becomes prominent it may fall over the thigh and simulate femoral hernia."

As to the diagnosis of the conditon of superficial inguinal hernia, it is believed that it can be but speculative and not positive. This is to be said, however, that perhaps additional stress can be put on the possibility of the existence of such a hernia when there is a mal-position of the testicle complicating.

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THE IMPORTANCE OF THE PHYSICAL EXAMINATION OF THE BACK IN GENERAL DIAGNOSIS.

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In the physical examination of patients one very important part of the body is almost entirely neglected, and in general diagnosis this neglected part of the body is one of the most important to be examined, namely: the back.

In every case of disease, whether acute or chronic, marked indications will be found by a careful examination of the spine in the region supplied by the posterior primary divisions of the spinal nerves corresponding to those segments of the spinal cord from which the affected parts derive their innervation. No part of the body can be functionally or structurally diseased without there being a disturbance either primarily or secondarily in those segments of the cord from which the part receives its nerve supply, and these diseased conditions invariably express themselves by indications which can be readily detected along the spinal column by a careful examination.

The question will be immediately asked by the readers of this paper as to what physical signs may be elicited which indicate these conditions? In the first place I may state that there are so few people in perfect health that it is seldom that one sees a perfectly symmetrical back. There are few people who are not compelled at some time during their lives to seek the advice of a physician, and in all of those cases in which the individual struggles through life with some crippled organ there will be found expressions of distinct impairment of the nervous mechanism of the parts involved which are invariably indicated by a careful examination of the back. In all of the cases of chronic disease which have come under my observation there have been disturbances of the nervous mechanism of the disordered part, usually dependent upon a deficient tonus of its blood vessels which is the result of a deficient blood supply to the segments of the spinal cord from which the vasomotor nerves arise.

If the back of a perfectly healthy individual is examined it will be found that, with the body placed in an upright, sitting posture, with the

hands placed symmetrically upon the knees, the spinous processes will present a vertical line without deviation. There will be no indications of prominent or depressed spinous processes aside from those normally found in the two anterior and two posterior curves in the spinal column. There will be no tendency to an abnormal separation of spinous processes due to relaxed ligaments or disturbances of the erector spinæ group of muscles, and the normal back will be found to be symmetrical if we make due allowance for the rather greater development of the musculature on the right side of the body, especially of the arm and shoulder.

If the patient is then placed in a recumbent position on the right side, with the head slightly elevated, there will be found in the normal individual a smooth, well developed group of muscles along the left side of the spinous processes all along the vertebral column, and there should be an absolute absence of tenderness or contracted bundles of muscle fibres which roll under the palpating finger, and vary in size from that of the diameter of a knitting needle to the thickness of the thumb. The same should be found along the right side of the vertebral column when the patient is placed upon the left side. The palpating hand should be placed upon the side of the spinous processes toward the physician when he stands facing the patient. The object of placing the patient in the lateral recumbent position, with the head slightly elevated, is to relax the muscles of the part examined.

After the thorough examination of both sides of the back the patient should be placed in a dorsal position, with the head upon a level with the trunk, and an examination made of the muscles of the neck, which, as those of the spine, should be in a normal individual perfectly elastic, smooth to the touch and painless upon moderate pressure.

These remarks apply, of course, to a perfectly normal, healthy person. As has been said before, these conditions are rare, and those who come to seek the physician's aid come because they have some complaint. It will, therefore, be found in these cases that the examination of the back and neck will reveal conditions very different from those found in the normal, healthy person.

A very common class of cases which come under the doctor's observation are constipation and disturbances of the digestive apparatus. Many of these cases, of course, are due to excessive or injudicious eating, lack of exercise, bad habits, etc., but in all cases of disturbances of functions of the stomach indications will be found by an examination of the back between the fourth and tenth dorsal segments of the spinal cord; and in cases of chronic constipation, accompanied as they are most frequently by disturbances of the functions of the stomach, additional indications will be found in the lower dorsal, lumbar and sometimes in the sacral regions of the cord. This class of cases is simply quoted as an example of what may be found in an examination of the back, and is applicable to all of the diseases acute or chronic, which come under the observation of the physician, varying only in the localization along the vertebral column which corresponds to the disturbed part. These indications are marked by slight lateral deviations of the spinous processes, atrophied erector spinæ muscles, irregularly contracted bundles of muscle fibre, which are nearly always tender to the touch when rolled under the palpating finger, and relaxed interspinous ligaments indicated by prominence or depression of one or more spinous processes. As these indications are always found in the region of the posterior primary divisions of the spinal nerves which arise from the segment of the cord which supply the organ or part affected, it seems logical to assume that they are indications of disturbances of the functional activity of those segments, and this assumption is borne out by our more recent knowledge of the functions of the spinal cord.

It is very difficult in a brief paper to elucidate this subject clearly and I would advise that each reader thereof in caring for his patients carefully examine the spine, when he will be able to satisfy himself that these statements are borne out by experience, and that a careful examination of the back will very often enable the physician to determine the existing conditions in the patient's body with little reference to what the patient may have to say in the way of a description of symptoms, etc.

With an intelligent class of patients the physician will have no difficulty in persuading them to allow him to make the proper physical examination, and they will often be grateful for the care that he has taken in investigating their cases.

In the examination of male patients it is seldom necessary to have the patient do more than remove the coat, vest and collar, as the condition can readily be palpated through the other clothing.

In female patients, of course, no satisfactory examination can be made without the removal of the corset, and in dealing with these patients it has been the author's habit to have the patient, after the removal of the corset, put on a light dressing saque or kimona, when the examination can be satisfactorily made. Of course, where possible, direct inspection of the bared back should be made.

I believe that if the readers of this paper will make an earnest endeavor to investigate this matter for themselves they will find much of interest and profit, and will be in a position more rationally to treat their patients.

As it is somewhat difficult to find in the ordinary text-books the data essential to the location in the spinal cord of the nervous mechanisms of different parts of the body, I have appended hereto a brief description of the nervous mechanisms of the different parts of the body and the segments of the cord from which they arise.

It must be borne in mind that the segments of the cord physiologically considered are thirty-one in number and correspond to the thirty-one pairs of spinal nerves and not to the vertebræ. Further, the indications to be found on examination correspond to the exit of the spinal nerve and not to the location of the segment of the cord in the spinal canal. For example, the sacral segments of the cord are located about the second or third lumbar vertebræ, but the indications are found over the sacrum at the exit of the nerve or in the muscles supplied by it.

All of the functions of the body are regulated by a mechanism consisting of an orderly arrangement of neural cells with their prolongations—the neuraxones, and dendrons with their branches the dendrites—so that messages are sent into the nervous system by the dendrons and dendrites, and messages are sent out from the central nervous system by the neuraxones: messages which regulate the functional activity of the various parts of the body and which change in response to alterations in external conditions surrounding the organism.

In the interpretation of this article it should be borne in mind in contradistinction to the ordinary anatomical consideration, that dendrites and dendrons are used exclusively in reference to those processes which carry messages to the neural cell body, while the term neuraxone is used exclusively to those processes which carry messages away from the cell body.

One of the most important parts of the nervous system, and the one upon which the functional activity of all of the cells of the body depends, is the circulatory system, which includes the circulation of the blood and lymph. The mechanism which controls the contraction and dilatation of the blood and lymph vessels is called the vasomotor mechanism. It consists of dendrons arising in all parts of the body which go to neural cells in the central nervous system, and neuraxones from cell bodies in the central nervous system which go to muscle cells of the vascular apparatus by which the supply of nourishment and oxygen to every part is controlled and the waste products removed. As typical of the general arrangement of this nervous mechanism that which supplies the blood vessels may be referred to. In this we have to consider two sets of ingoing paths and two sets of outgoing paths. In the medulla oblongata, in the floor of the fourth ventricle, there is a collection of neural cell bodies arranged in two groups. One group, which has the control of vaso constriction, and the other which controls arterial dilatation. The first is called the vasoconstrictor nucleus and the second the vasodilator nucleus. These two nuclei taken together are called the vasomotor nucleus.

The neuraxones of these nuclei pass downward through the spinal cord probably chiefly through the anterolateral descending tracts and come into contact with neural cells in the anterior horns of the spinal cord. One neuraxone, by means of collaterals, may come into contact with neural cells in a number of segments of the cord. The vasomotor cells in the cord send their neuraxones through the anterior roots of the spinal nerves. They leave the spinal nerve a short distance beyond the junction of the anterior and posterior roots and pass through the rami communicantes to one of the ganglia of the sympathetic system of nerves, and have been named by Langley the "preganglionic paths." In the ganglion the preganglionic paths end in contact with one or more neural cells whose neuraxones, as "postganglionic paths," are distributed to the muscle cells of the blood vessels.

The neuraxones from the constrictor nucleus to the muscle cells of the blood vessels are in a constant state of functional activity keeping up a partial constriction of the muscle cells of the blood vessel walls and thus preserve arterial tone, which is necessary for the proper distribution of the blood.

Postganglionic paths of both constrictor and dilator neural cells are, as a rule, found together except in the case of certain of those supplying the blood vessels of the head and those supplying the blood vessels of the abdominal and pelvic viscera and the external organs of generation. The postganglionic paths of neural cells supplying the blood vessels of the skin, the muscles of the leg, trunk and arms follow the paths of distribution of the spinal nerves, reaching the spinal nerves through the rami communicantes between the sympathetic and spinal nerves. Those which supply the blood vessels of the muscles follow the distribution of the musculomotor nerves, and those supplying the blood vessels of the skin through the paths of distribution of the sensory nerves.

Practically all of the vasoconstrictor neural cells, so far as we know, are found between the second dorsal and the second or third lumbar segments of the cord. Those for the brain, face, scalp, eye, ear, mucus membrane of the nose, mouth, pharynx, tonsils, larynx and salivary glands are found in the second, third and fourth dorsal segments of the cord. All vasoconstrictor neural cells for the esophagus and stomach are found in the fourth to the ninth dorsal segments. Those for the small intestines from the sixth dorsal to the second lumbar. Those for the liver from the sixth dorsal to the first lumbar, but chiefly in the tenth, eleventh and twelfth dorsal The vasoconstrictor neural cells for the pancreas, spleen and suprarenals in the eighth to the twelfth dorsal, although some are found in segments above the eighth though less numerous in these regions. The vasoconstrictor cells for the large intestines are found from the eleventh dorsal to the second lumbar. Those for the bladder, the external organs of generation, the uterus, Fallopian tubes, ovaries, testicles and prostate gland are located chiefly from the eleventh dorsal to the second lumbar segments, but it is probable that occasionally they may be found in the third

and fourth lumbar segments. Those for the external organs of generation and the skin of the anogenital region in the second and third lumbar segments.

The vasodilator neural cells, with the exception of those supplying the blood vessels of the skin and muscles of the trunk, are found chiefly in the nuclei of the cranial nerves and in the sacral segments of the cord, those for the skin and muscles of the trunk being found throughout those segments of the cord which supply these regions. The vasodilator neural cells for the blood vessels of the eye are found chiefly in the nucleus of the third cranial nerve, probably also to some extent in the nuclei of the third and sixth. Those for the face and scalp are in the nuclei of the seventh and ninth cranial nerves; those for the mucous membrane of the nose, the hard palate, the soft palate, the mucous membrane of the upper lip and upper gums in the nucleus of the seventh. Those for the floor of the mouth, the lower lip, the mucous membrane of the cheeks, the lower gums and the tongue in the nucleus of the ninth cranial nerve. Those for the parotid glands in the nucleus of the ninth, and for the submaxillary and sublingual glands in the nucleus of the seventh. Both vasoconstrictor and dilator cells for the bronchial arteries (supplying nourishment to bronchi and lungs) are probably located in the third to seventh dorsal segments of the cord. The vasodilator neural cells for the stomach and small intestines, the liver, pancreas, suprarenals, spleen and probably the first half of the large intestine are found in the nucleus of the tenth. The vasodilator neural cells for the Fallopian tubes, uterus, ovaries, testicles are found chiefly in the third, fourth and fifth sacral segments of the cord. For the bladder, external organs of generation and the skin of the anogenital region in the third and fourth sacral segments.

The neural cells, both constrictor and dilator, for the blood vessels of the spinal cord and its membranes are probably found throughout the entire length of the cord, and they send their preganglionic paths to the coresponding vertebral ganglion, from whence postganglionic paths pass to the corresponding spinal nerve to be distributed to the blood vessels of the cord and its membranes.

In addition to the importance of a knowledge of the location in the cord of vasomotor neurons it is important to know the location of the visceromotor neurons which control the involuntary muscles aside from those of the vascular walls.

The visceromotor cells for the iris and ciliary muscles are located as follows: Those which bring about a constriction of the pupil, in the nucleus of the third cranial nerve. The dilator cells for the pupil are found chiefly between the sixth cervical and first or second dorsal. The visceromotor mechanism for the bronchi and bronchioles are found of the constrictor type only so far as we know in the nucleus of the tenth cranial nerve, and it is probable that there may be an opposing group of cells in the spinal cord between the third and seventh dorsal segments for the reason that the proper manual treatment in this region of the spinal cord is of great value in relaxing the bronchial spasm in asthmatic conditions. The heart also has a double visceromotor mechanism which consists of an accelerating set of neurons found chiefly from the sixth cervical to the first or second dorsal segments of the spinal cord. The inhibitory neural cells for the heart are located in the nuclei of the tenth and eleventh cranial nerves and send their paths to the heart through the tenth nerve.

The entire alimentary canal is also provided with a double mechanism consisting of those neurons which accelerate peristaltic movement and those which inhibit peristaltic movement. The accelerating cells for the esophagus, stomach, small intestines and probably the ascending portion of the large intestines are found chiefly in the nucleus of the tenth cranial nerve, possibly also to some extent in the eleventh. Their paths are also distributed through the tenth. The inhibitory neural cells for the parts just named are found chiefly in the spinal cord in segments which correspond to the vasoconstrictor neural cells which supply them. (It is also probable that some inhibitory paths exist in the tenth cranial nerve, and some accelerators in the cord.)

The neural cells which bring about inhibition of the muscular coat of the fallopian tubes and uterus, with contraction of the cervix, the vagina and perineum, are located chiefly in the second, third and fourth lumbar segments, while those that bring about a constriction of the Fallopian tubes, the muscular coat of the uterus, accompanied by dilatation of the cervix, vagina and perineum, are found in the second, third and fourth sacral segments, the paths to the perineum and the vagina passing by way of the internal pudic nerve. Neural cells which bring about inhibition of the muscular coat of the bladder, accompanied by contraction of the sphincter of the bladder, are found in the second, third and fourth lumbar segments; while those that bring about contraction of the muscular coat of the bladder accompanied by a relaxation of the sphincter, are found in the second, third and fourth sacral segments.

The mechanism of the rectum and its internal sphincter are of similar character to those of the bladder, and occupy practically corresponding segments of the cord, while the neural cells for the external sphincter are probably in the last sacral and to some extent in the coccygeal segments.

This in a general way will cover the location in the spinal cord of the mechanisms that control practically all of the important functions, but of necessity has had to be brief, and for more detailed information the reader must be referred to the more recent large text books on physiology, especially Langley's article on the sympathetic and Sherrington's article on the spinal cord, to

be found in the second volume of Schafer's physiology. Much information may also be found in Tigerstedt and the American text-book. In addition to these text-books reference may be made to the various papers of Langley and Langley and Anderson, Bayliss and Starling, Sherrington and various others, which appeared within the last few years in journals of physiology.

NOTE.—Vasodilator cells located in the nucleus of the seventh cranial nerve send preganglionic paths to Meckel's and the submaxillary ganglia. Those in ninth send preganglionic paths to the otic ganglion. The postganglionic paths of both the seventh and ninth are in the main found in the fifth cranial nerve.

LOCAL ANESTHESIA BY CATAPHORESIS AND BY MECHANICAL PRESSURE.[1]

BY WILLIAM JAMES MORTON, M.D.,
OF NEW YORK.

THE three great discoveries of modern times in medicine—vaccination, anesthesia and antisepsis—are those around which respectively cluster great advances. Vaccination presses on into the great doctrine of "immunity." Anesthesia which, like Minerva of old, sprung forth full grown and fully equipped, with ether anesthesia in 1846, was in 1847 supplemented by the substitution agent, chloroform, and has since excited many efforts toward a practical local anesthesia. Antisepsis suggested asepsis and modern methods of resisting microbes.

In this discussion there has been assigned to me but a brief leaflet out of the great volume of anesthesia, namely, local anesthesia by cataphoresis and by mechanical pressure.

I will consider the two subjects in their historical order.

Cataphoresis.—Cataphoresic medication implies that medicaments may, by electric pressure or voltage, be caused to penetrate the sound skin or mucous membrane and thus exert their characteristic effects. If these medicaments have anesthetic or analgesic properties, we have then established a local anesthesia or analgesia.

But the penetration of the skin may begin at either pole and we therefore must speak of an anaphoresis. For this reason I have suggested calling the entire process, electric medicamental diffusion.

Privati, of Venice, in 1747 was the first to claim the transportation of medicine by electricity into the system. He employed static electricity. His views were, however, apparently fantastical. Following the advent of galvanic electricity, Reuss in 1807, observed that ordinary osmosis of fluids of differing densities, separated by a membrane, was accelerated by the battery current. Porret, in 1815, demonstrated that the direction of the flow was almost always from the positive to the negative terminal of the battery circuit; he was the father of electric osmosis. Fabré-Palaprat, in 1833, was apparently the first to introduce medicines into the animal body by the galvanic current. He employed a compress, saturated with the medicine and covered with a platinum disc on each arm. Klenke and Hassenstein, in 1847, and Hassenstein in 1853, successfully repeated the experiment with iodide of potassium and with solutions of mercurial salts. G. Wiedermann in 1853, formulated the laws governing the diffusion or transportation of liquids by the current.

In 1859, Dr. (later Sir) Benjamin Ward Richardson, endeavored to introduce into practice a method of local anesthesia by the use of electricity and narcotics, terming the procedure "voltaic narcotism."

The medicines employed were aconite and chloroform, as follows:

℞ Tinc. Aconiti	℥ii
Ext. Aconiti	℈i
Chloroformi	℥ii

Mix.

Using this mixture at the positive pole and applying it to the leg of a dog, complete anesthesia was produced in eleven minutes, and later the leg was amputated without pain. So much opposition, led by A. Waller, was developed toward Richardson's claims, that he abandoned his position, compensating, however, for his abandonment by introducing a method of local anesthesia by the ether spray as at present in use.

The above mentioned efforts, extending over a period of about one hundred years, produced no effect in practice, partly because of fundamental defects in technic, and partly because of universal scepticism as to the validity of the facts. The modern revival of electric pressure anesthesia followed the advent of the use of cocaine as an analgesic. Wagner in 1886, suggested electro-cocaine local anesthesia. Erb, in 1884, introduced medicines through the intact living skin by the aid of the continuous current, and demonstrated their presence in the saliva and the urine of the subject. Lewandowski did the same. Boccalari and Manzieri introduced strychnine, atropine, quinine, and iodide of potassium, through the unbroken skin. In 1886, Adamkiewicz introduced chloroform into tissues and thereby produced local anesthesia. J. Leonard Corning, of New York City, in 1886, punctured the skin with the Baunscheidt needle apparatus, and then used the electric current to introduce cocaine. Frederick Peterson, in 1888 and 1889, undertook a series of exhaustive experiments, which settled definitely many disputed points, and used cocaine and other alkaloidal compounds for the relief of neuralgic pain. His experiments, however, did not extend to the point of the production of local anesthesia for the performance of surgical operations.

In 1889, Mr. Newman Lawrence and Dr. A. Harris, both of London, described the cataphoric

[1] Read before the Annual Meeting of the American Therapeutic Society, June 2, 1904.

method of medication. Cagney, of London, followed their plans. In 1890, Mr. Thomas A. Edison wrote a paper upon the employment of cataphoresis for the relief of gout, using chloride of lithium salts. In later years, excellent papers upon the subject were published by Danion, Labatut, Destot, Tommassi, Bergonié, Grosheintz, Imbert de la Touche, Gärtner and Ehrmann, Leduc, William J. Herdman, and many others.

In 1885, Mr. Vergnes, an electroplater, discovered that medicines could be extracted from the human body by the galvanic current as well as introduced into it, and was thus the originator of the process of "cataphoric demedication," as I have termed it. A system saturated with mercury, can thus be freed from the mercury. This plan was further advocated and published by Poey, of Paris. McGraw, of California, in 1896, applied electro-cocaine anesthesia for the purpose of benumbing the pain of a sensitive tooth, inserting the electrode upon a pledget of cotton saturated with cocaine within the cavity of the tooth.

Westlake, Gillet, and the writer, took an active part in the further introduction of cataphoresis into dentistry. The writer's contribution to electro-cocaine anesthesia was to add guaiacol or some similar agency, like carbolic acid, to cocaine. This addition decreases the time of administration upon a surface of the skin, from fifteen minutes with an aqueous solution as formerly employed, to two minutes with a guaiacol or carbolic acid solution, and decreases the amount of current required from fifteen milliampères for a one inch surface of electrode, to two milliampères. The advantages of this combination are, that the toxicity of the cocaine is reduced, that its effect is enhanced, and that the application sterilizes.

The writer also invented a new form of cataphoric electrode, consisting of a metal, like block tin, perforated all over its surface with drill holes, in order to form honeycomb-like recesses for the fluid, thus providing a continual feed to the intervening piece of blotting paper between the skin and the metal. The drill holes, one-thirty-second of an inch in diameter, should not entirely perforate the metal. A further advance by the writer was to use cataphoric anesthesia for minor surgical operations, in a first case, December, 1891, Dr. Howard Lilienthal operating, employing proper electrodes and an aqueous solution of cocaine.

The modern process of cataphoric local anesthesia is an absolutely simple and practicable one, and has been entirely wrested from the realm of uncertain and doubtful procedures.

Physical Basis.—Many early experiments from 1750 onward, have demonstrated beyond a question, that material particles are conveyed by the electric current, whether static or galvanic, from the positive to the negative pole. If we place glycerine or syrup or any other viscid material upon the positive discharging rod of an influence machine, we may observe that the fluid is carried directly across the intervening gap to the negative pole. This is an actual transportation of matter from the positive to the negative pole. If, as the writer has done by actual experiment, very finely ground particles of graphite, are held in suspension in "water glass" (silicate of sodium solution) and applied to the arm at the positive pole of the galvanic current, the graphite particles are driven into the sweat glands, and remain visibly imbedded for a week or two. There can, therefore, be no doubt of the actual transportation of both fluids and solids from the positive to the negative pole.

On the other hand it is equally positive that in the act of electrolysis, the respective ions are transported with their respective speeds from the positive to the negative, and from the negative to the positive poles. Following the doctrine of Arrhenius, we would say that in dilute solutions only the free ions were thus transported, and this is undoubtedly the fact. From this point of view, certain medicines must be used at the positive pole, and certain others must be used at the negative pole. Most modern authors explain the phenomena of cataphoresis, therefore, on the ionic doctrine. It seems to me that both explanations as above given, must be taken into account and I have suggested that while the free ions obey the electrolytic law, that the neutral molecules obey another electric law of transportation from the positive to the negative pole. For example from the electrolytic point of view, if iodide of potassium is placed upon the positive pole, the iodine, being electronegative, will remain there, while the potassium being electropositive, will move toward the negative pole, but from the transportation point of view, the free neutral molecules of iodide of potassium, will move from the positive to the negative pole. From an electrolytic point of view, therefore K. I. should be placed upon the negative pole to secure the introduction of iodine but not of iodide of potassium.

The currents from influence machines, as well as "battery currents," may be successfully employed.

Drugs Available.—The most favorable drug for electric local anesthesia, is, of course, cocaine; eucaine follows next. Other possible drugs are acoin, holocaine, orthoform, orthoform-new, nirvanine, anesin, tropacocaine, hemicranin, and chloreton.

Method and Technic.—These may be best illustrated by the relation of a single case, namely, the removal of a large pigmented nevus, suspected to have a sarcomatous tendency. The nevus was nearly three inches long by one-half inch wide, situated upon the thorax. An ordinary galvanic battery of twenty-four cells was employed. The electrode was of block tin, three and one-half inches in length by two inches wide, and one-quarter of an inch in thickness, and per-

forated thoroughly but only half way through the metal with drill holes. This metal plate is set in an ebonite frame, projecting beyond the metal the width of a piece of blotting paper. A piece of blotting paper cut to fit the metal and its surrounding ebonite ring served to hold the anesthetizing solution. This solution was prepared freshly, according to the following prescription:

℞ Guaiacol 3i
Cocaine hydrochlorate anhydrous.....gr. vi
Mix.

Of this solution sufficient was put upon the blotting paper to wet it thoroughly, while some was also placed beneath the blotting paper in the honeycomb cells. The skin of the proposed operation was washed with soap and water. The electrode was then applied, six milliampères of current were allowed to flow for six minutes. The surgeon then made two deep linear incisions, each about three inches long and half an inch deep, in such a manner as to include the nevus. The nevus and the including parts of sound skin were then dissected up from the subcutaneous tissues, the dissection extending at least an inch deep. Five small arteries were subjected to torsion and ten deep stitches closed the wound. No pain whatever was produced either in procuring the anesthesia, making the incisions and dissections, twisting the arteries, or inserting the stitches. The patient, himself a physician, watched the operation and said that he had experienced no pain. There were no subsequent toxic effects of the cocaine. The wound healed by first intention.

It is well immediately upon removing the electrode, and before making any incision, to wash off the part thoroughly with alcohol, in order to obviate any possible absorption of the guaiacol, and cocaine solution into the incision. Also catgut ligature should not be used, since it may be acted upon by some remaining guaiacol.

Uses.—The uses of a complete and perfect local anesthesia, like the one above described, are obvious, and it is remarkable that this method has not come into more general practice, though, of course, the fact that a battery of from twenty to thirty cells, is required, has been unfavorable. In hospital practice, or in the practice of electrotherapeutists, this objection would not hold good. In my own practice, I use electro-cocaine-guaiacol local anesthesia, in a great variety of minor surgical operations, as, for instance, the removal or treatment of a nevus, a facial blemish, the incision of a carbuncle or furuncle, or felon, for all cases where electric needles are to be applied with pain, etc. The principal value of the method, therefore, is in minor surgery, but I have no doubt that incisions for laparotomy and larger operations might in the same manner be painlessly made.

Of late years I combine adrenaline chloride with cocaine and find that the effect is superior to that of cocaine alone—using both, of course, with guaiacol or carbolic acid. This mixture may be diluted with oils.

Pressure Anesthesia.—The term "pressure anesthesia" was invented by the writer in 1897 to define a new method of local anesthesia, presented by him at that time. This method was based on the idea that medicamental solutions, especially anesthetizing solutions, might be forced into the tissues by the pressure of vapors or gases, or by mechanical pressure. The following language, used at that time in an address published in the *Dental Journal* entitled "Items of Interest," Vol. 19, pp. 717-18, describes the main idea involved. "It occurred to me that I might dissolve hydrochlorate of cocaine in ether and produce anesthesia, but I tried it and found that the cocaine salt would not dissolve in ether. I finally dissolved my cocaine in guaiacol. I made a strong solution and added half and half of sulphuric ether, and there was no precipitation of the cocaine. I had a very small test tube on the table and I put some of the guaiacol sulphuric ether and cocaine solution into that tube, pressed the mouth of the tube on my arm and asked my assistant to time me; I held it there for five minutes, and taking a needle I found my skin was numb. I had made an experiment that established a new order of things, which I have christened "pressure anesthesia."

This plan was immediately put into practice by many of the dental profession, and in the following manner: A pledget of absorbent cotton saturated with the anesthetizing solution was introduced within the cavity of the tooth, when it was desired to benumb the pain or extract the nerve, and this pledget was then immediately sealed in closely with a soft rubber stopping. In a very few minutes the sensitive contents of the interior of the tooth were anesthetized and the operator could then proceed to excavate without pain, or even to extract the nerve painlessly. It would appear that the evaporation of the sulphuric ether into the closed cavity forced the anesthetizing solution into the sensitive tissue of the tooth cavity. It also was plain that the mechanical pressure of forcing in the rubber stopping had much to do with disseminating the contained anesthetizing fluid.

The method above outlined has now become wellnigh universal in dental practice, so much so that a recent editorial in *Items of Interest* of the date of November, 1903, refers to it as "An Era in Dentistry" as follows: "The perfection of any new and valuable discovery constitutes an era in the history of the art or science to which it applies. That such an event has occurred in dentistry does not appear to be sufficiently appreciated." The editor then discussed the treatment in vogue in dentistry for more than a century of "killing the nerve" in teeth by means of arsenic, and points out the disadvantages of the removal of the pulp of the tooth, both with and without arsenic. Referring to the fact that cataphoresis had lost its popular-

ity and that arsenic had again become dominant, he states that finally this method of pressure anesthesia had solved the problem. There still remains, however, as an occasional difficulty in the removal of the nerve, the fact that sometimes hemorrhages occur, and to control these, Dr. Clyde Davis had recommended the use of adrenalin in connection with the cocaine pressure anesthesia. The editorial concludes by saying: "The dental profession has now at hand a ready means of removing pulps painlessly and without the use of arsenic."

In the actual practice of pressure anesthesia in minor surgery I have frequently made use of a cupping glass, a watch glass, or a test tube, as described in the experiment above quoted, that is to say, utilizing the pressure qualities of ether or alcohol vapors. The process is exactly opposite to that of cupping, for the pump may be used to fill the cupping or other glass, as well as to abstract air from it.

This method, of course, has nothing to do with the infiltration method of Schleich, where the solution is injected into the tissue. The pressure factor of the operation, which I had christened pressure anesthesia, refers to the method of introducing the agency into the tissue, rather than to its action after it has been introduced.

While, therefore, pressure anesthesia, as first proposed by the writer, has at the present moment its principle utility in dental practice, it is by no means impossible to say that further experimentation in the direction of demonstrating its practicability, may not find it a valuable adjunct in surgical local anesthesia.

MEDICAL PROGRESS.

MEDICINE.

New Physical Signs in Diseases of Chest.—A number of new physical signs described by A. GROBER (*Deutsch. Arch. f. klin. Med.*, Vol. 82, Nos. 3 and 4) are considered by him as far more valuable in the diagnosis of intrathoracic disease than diascopy. It is but little known that difference in the size of the pupils is a common symptom of apex tuberculosis. The pupil of the affected side is generally wider since the sympathetic nerve is irritated by the inflamed pleura. Another valuable sign is the behavior of the veins of the chest if an expiratory effort is made with closed glottis as in Valsalva's method. Normally the vessels on both side swell equally, but with tumors, aneurisms, etc., the veins which are affected by the compression, will be more prominent. Normally, the pupils will contract somewhat during expiration and dilate slightly with inspiration; with Valsalva's method, there will be a gradual, slight dilatation during the deep inspiration preceding the expiratory effort and a gradual, slight contraction during the latter. The following variations occur: (1) Only one pupil will show the normal contraction; the other will dilate. On the side of the latter, pathological lesions of definite localization will be found in the thorax. (2) If both pupils dilate instead of contracting during forced expiration, the disease is bilateral. (3) If there is a difference in the size of the pupils during normal respiration and the dilated pupil widens still more during Valsalva's experiment, while the contracted one will become normal, intrathoracic disease on the side of the wide pupil is probable. (4) If the pupils differ in size with quiet respiration but dilate with Valsalva's method, bilateral intrathoracic affection is probable. If the smaller pupil becomes equal in size or larger than the second one, the disease probably also affects both sides, if local disease or organic disease of the nervous system can be excluded. Absence of all these phenomena does not argue against intrathoracic disease. The percussion note obtained over the manubrium sterni is also of the greatest value. In real or inflammatory tumors of the mediastinum there will often be dulness with closed mouth and dull tympany with open mouth, or dull tympany with closed mouth and Wintrich's change of percussion with open mouth. If the posterior mediastinum is chiefly affected, the note will be purely tympanitic with closed mouth; with distinct Wintrich's change on opening the mouth.

Spastic Diplegia During Pertussis.—J. H. W. RHEIN (*Journal A. M. A.*, March 4), reports the case of a child, thirty months old, who had spastic diplegia in the legs with nystagmus. Later a similar condition of the arms gradually developed, with difficulty in swallowing, etc. The child became greatly emaciated, and finally died after numerous general convulsive attacks, worse on the right side. The autopsy revealed numerous small hemorrhages in the right and left frontal cortex, slight thickening of pia in the paracentral region, with a few small cortical hemorrhages. There were areas of distended perivascular spaces containing many round mononuclear cells, which were also distributed everywhere throughout the cortex; their protoplasm was granular. In the occipital region there was thickening of the pia and intense red blood cell infiltration. Microscopically, marked degeneration was observed in one cerebral peduncle. The general appearance was that of a hemorrhagic meningoencephalitis. Rhein believes that the widespread lesion of the cortex was due to a toxin acting on the vessels and setting up an inflammatory process. This caused local destruction of fibers, especially in the paracentral region, followed by degeneration in the pyramidal tracts. The minute cortical hemorrhages he attributes to the convulsive attacks preceding death.

Fear in Cardiac Disease.—W. R. DUNTON, JR. (*Journal A. M. A.*, February 18), incited by a statement that all cases of alienation showing apprehension revealed cardiac disease, examined the twenty-five most recent admissions in the Sheppard and Enoch Pratt Hospital and some twenty cases in the Johns Hopkins Hospital. He concludes that the cardiac lesion is not the primary factor in causing the associated state of apprehension. What we may call, for want of a better term, the idiosyncrasy of the patient, is largely responsible for apprehension associated with cardiac lesions. In neurasthenic types a lack of vagus control is an important etiologic factor. Our knowledge of the subject is still not yet exact, and he asks the cooperation of clinicians in the investigation.

Mortality of Pneumonia in High Altitudes.—Major CHARLES F. KIEFFER (*Am. Med.*, March 5, 1905) refers to the very common belief that pneumonia is more fatal in high altitudes than at the sea level.

Several recent papers are reviewed. The paper is a study of the cases occurring at Fort D. A. Russell, Wyoming, at an elevation of 6,195 feet above sea level, during the period between 1868 and 1905. During this time among 26,569 admissions for all causes, there were 127 cases of pneumonia with 20 deaths; a mortality of 15.74 per cent. The fatal cases are classified according to the anatomic location of the disease. The writer calls attention to the prognostic import of syphilis on pneumonia. The figures are compared with those of the entire army. In the period between 1868 and 1893 the total admissions in the army for pneumonia were 7,078 with 1,105 deaths; a mortality of 15.61 per cent. During the same year at Fort Russell, there were 123 cases with eighteen deaths; a mortality of 14.63 per cent., the advantage in favor of high altitude being one per cent. Charts are included showing the incidence of the disease by months and a chart showing the mortality and ratio of incidence in the army for thirty-six years. The paper concludes that the figures, as far as they go, seem to show that altitude has very little influence on the mortality of pneumonia.

Carbonic Acid and Tuberculosis.—A treatment of tuberculosis by means of drugs which increase the amount of carbonic acid in the blood, is recommended by E. FUNKE (*Wiener klin. therap. Woch.*, January 29, 1905). The tubercle bacilli cause a secondary destruction of the tissue-proteids. Hydrogen is set free and acting as a reducing agent, attracts oxygen, which brings about vigorous oxidation of the tissue proteids. It is desirable to prevent this action of oxygen, by having the blood which bathes the tuberculous areas contain a large amount of carbonic acid. This is accomplished by the administration of sodium bicarbonate, and formic acid (CH_2O_2). The use of the phosphates of calcium will accelerate the process of calcification of old tuberulous areas.

Poisoning by Potassium Bichromate.—FRANCIS E. FRONCZAK (*Am. Med.*, March 5, 1905) describes fully a case of attempted murder by poisoning with potassium bichromate, which is rarely used for such purpose, only a few cases being reported in the literature. The patient, a woman of fifty-eight years, was given the poison in port wine, and in a mixture of alcohol with raspberry syrup. Later, her husband prepared her a strong solution of the chemical in water, calling it "tea." The woman took altogether about 6.5 gm. (100 grs.) At first she vomited heavily, had convulsions, pains in the stomach, dizziness, headache, cold sweats, and diarrhea. Her face became later ghastly pale, eyes dilated, respirations very slow and labored, about 8 to 10 per minute, pulse 56, weak and compressible. Urine contained considerable blood. The woman recovered after a week, but complained of occasional pains in the stomach and of backache; for some time albumin was found in the urine. The author reviews the subject of potassium bichromate and recommends treatment, which consists in giving alkalies and milk to counteract the irritating poison, and anodyne for the pain. Some very simple methods of finding all soluble chromates are fully described.

SURGERY.

Exploratory Abdominal Section.—JOHN YOUNG BROWN (*Journal A. M. A.*, March 4), insists on the importance of exploratory section in all cases of penetrating wounds of the abdomen, when multiple perforations exist, or when the blood supply is cut off resection of the bowel is imperative. For this purpose, in case of gunshot wounds, he considers the Murphy button the ideal method. In severe abdominal contusions, he agrees with Bottomley, that operation is generally advisable, especially when there is pain, tenderness and muscular rigidity. In cases of strangulated hernia, when there is any question as to the integrity of the bowel, he believes that resection should be performed. The distended loop should be drained above the constriction. As soon as the gut has been delivered through the supplementary incision he clamps it off and ties a glass tube, to which is attached a rubber hose, into its proximal end, and then proceeds with the resection. This is time saving and drainage is effected without soiling the field.

Acute Intussusception in an Infant; Resection of Gangrenous Intussusceptum; Murphy Button Anastomosis; Recovery.—E. W. PETERSON (*Med. Rec.*, March 4, 1905) reports what he believes to be the first successful operation on an infant, for the relief of intussusception, in which resection of the gut was performed. The patient was an infant of four months and twenty days, with typical symptoms pointing to an intussusception of about thirty hours' duration. Four inches of the ileum, the cecum, and an inch of the ascending colon were resected and an end-to-end anastomosis made by means of the Murphy button. Convalescence was stormy, but the patient was discharged cured on the fifteenth day. The button was expelled on the fourth day. The author considers that it is of importance to avoid the systematic use of opium in the postoperative treatment of these cases, owing to the risk of the drug's aggravating the enteritis and toxemia usually present.

Prosthetic Treatment of Fracture of the Mandible.—F. A. FAUGHT (*Med. Rec.*, March 4, 1905) says that fracture of the mandible is usually compound, and that probably in one-fourth of the cases the injury is multiple, but that the prognosis is generally favorable except in extreme old age. Complications must be guarded against by frequent cleansing of the wound and mouth, and removal of all fragments of bone which show the slightest tendency to produce suppuration. The problem of securing adequate fixation of the fragments without interfering with mastication, and the proper care of the mouth, is often difficult, and some of the plans employed are open to serious objections. Among these is the use of the upper teeth as a splint and guide for maintaining the fragments in place, because it is uncertain in result and entails much discomfort. The continued use of a fixation bandage passing around the front of the chin is also unsatisfactory, and may lead to positive and permanent harm. The introduction of wire sutures through holes drilled in the bone is to be resorted to only after all other methods have failed. The author describes the steps necessary to produce a metallic cap splint, which is accurately modeled on the restored cast of the injured jaw and is cemented to the teeth. This offers the advantage of introducing the least amount of foreign substance into the mouth, is contained entirely within the mouth, and affords a rigid support for the fractured bone, while permitting of free movement of the mandible with easy access to the oral cavity from the first.

Iodoform Bone Plugging.—This subject has aroused a good deal of attention in this country, and

judging from the reports presented from the surgical section of the Academy, it is well merited. MOSETIG MOORHOF and SEYMOUR JONES (*Lancet*, January 21, 1905) in an extensive monograph on the subject, report as follows: The mixture consists of 60 parts of the finest pulverized iodoform and 40 parts each of spermaceti and oil of sesame, a compound which at the ordinary temperature of a room forms a stiff yellow mass; at 15° C. it becomes fluid, and on allowing it to stand, the oily constituents rise and the iodoform sinks. It must therefore be well shaken before using. Moorhof began his researches on bone cavities five years ago. He then used an iodoform paste of the consistency of putty. He soon discovered, however, that hermetic sealing of the cavity, the desired result was to be obtained only by pouring in a thoroughly fluid mass. This mass must adhere to every portion of the wall filling every fissure and interstice. To accomplish this, the cavity must obviously be entirely dry and should be treated precisely as though it were occurring and being treated in a tooth. This implies that the part must be made not only as aseptic as possible, but practically dry. Silbermack has contrived a very simple apparatus by means of which sterile, cold, dry air can be blown in. The air is carried through a formalin solution and then through calcium chloride. When the walls are free from moisture, they appear dull. If electrical power is available, drills run by motor are preferable to any operated by hand power, although this is not a necessary part of the technic. The plugging material should be poured in slowly and for well plugged cavities, no special drainage is required, for they neither bleed nor discharge. A small amount of lymph may be secreted by the soft parts, but if no sinuses are present, it is sufficient to depend on rather wide stitching of the wounds for drainage. The secretions are invariably of a lymphoid character, being obtained almost entirely from the divided lymphatics. It is interesting to note that here as elsewhere in the case of paraffin and other materials introduced into the tissues, the filling has but a relatively short life in the cavity. It stimulates granulation tissue very actively and may be pressed out by the growth of this from below. Even more fortuitous is the absorption of the mass by phagocytic action, occurring after primary union of the soft parts. This process may be demonstrated in two ways. It may be seen under the X-ray, for iodoform throws an excellent shadow, or it may be determined by the amount of iodine reaction in the urine. This iodine is absorbed very slowly and there can therefore be no danger of intoxication or iodoform poisoning even in the case of very large cavities. The production and gradual growth of bone tissue are effected by a primary formation of new connective tissue. Later the lime salts are deposited. The bone thus formed has been derived from the granulation tissue and the process is not unlike that seen in callous formation. In connection with this, Silbermack has made extensive investigations with animals since the beginning of 1903, the results of which he will soon publish. The time which is required to complete the organization of the bone is very variable. It may take more than a year, or it may be accomplished in less than one-quarter that time. Moorhof, in 220 cases, has never seen any ill effects arising from the technic. The exploitation of the method has not been remedied to ordinary osteomyelitic cavities, it having been used freely and successfully in the treatment of tuberculous joints. It is obviously necessary that the freest possible incision should be made to gain access to the joint, and that it should be most thoroughly cleaned before any effort is made to use the wax. Successful operations have been performed upon the wrist-joint, the elbow, the shoulder, the ankle and the knee, and the hip-joint. Moorhof proceeds according to the following rule, which is applied in all cases to children. He removes the cartilage piecemeal with a heavy knife and then proceeds to cut out the affected bone. There is no advantage of sawing off thick slices, for this interferes immediately with the gait of the patient. A thorough scooping process and a getting of the part absolutely dry usually being much preferable. Further use of the material is found in face lesions, such as dental cysts and empyemata of the antrum of Highmore. Moorhof has also reported a case in which he plugged the mediastinum in a fourteen-year-old girl. There was present in the middle of the sternum an ulcer. The apices were not involved. On opening the chest, it was found that a cavity existed which required 200 grams to fill it. The results were extraordinary. The evening temperature ceased and the patient was outdoors on the seventh day. Dyspnea, however, occurred and could be relieved only by hypnotics. It was found furthermore that the air made its entrance and exit through the lower wound.

Report of Eighty-four Operations on the Kidney and Ureter.—G. E. BREWER'S (*Med. Rec.*, February 18, 1905) list comprises twenty-seven nephrotomies, the same number of nephrectomies, nine nephrorrhaphies, ten decapsulations, five operations on the pelvic portion of the ureter, and six emergency operations on traumatic cases. These classes are discussed in detail, and the diagnosis of renal calculus is treated at considerable length. From a review of the conditions present in his cases the author feels justified in stating that there is no single symptom nor sign, nor any group of symptoms or signs that is absolutely pathognomic of renal or ureteral calculus, unless the calculus lies in the lower ureter and can be touched by a metal bougie or catheter. The most important factors to be considered are pain, tenderness, hematuria, the results of radiography, cystoscopy, and ureteral catheterization. While vomiting, vesical irritability, pyuria, fever, and the presence or absence of a renal tumor are important and will often help us to confirm or lead us to exclude other pathological conditions, too much reliance must not be placed upon them in the diagnosis of calculus. While pain and tenderness were present in practically 100 per cent. of the author's cases of stone, there were also present in a large perecntage of the cases in which no stone was found, and calculus may, and often does exist without pain. Hematuria was known to be present in 52 per cent. of the author's stone cases, but it was also present in 45 per cent. of the cases without stone. Spontaneous hemorrhage occurring during rest and sleep generally means new growth. Hemorrhage following active exercise or jolting and accompanied by characteristic colic, in the absence of other demonstrable pathological conditions is strongly suggestive of calculus. Excluding imperfect plates and those in which the edges of the shadow were not distinctly defined, the X-ray gave accurate indications in 95 per cent. of the cases, and must therefore be regarded as the most reliable means of examination which we possess. Cystoscopy helped to a correct diagnosis in 60⅔ per cent. of the cases examined, while it was misleading in 33⅓ per cent. Ureteral catheterization proved valuable in confirming the diagnosis, in definitely determining the side of the lesion, and in estimating the competence of the opposite kidney.

Purgation Before and After Operation.—I. S. STONE (*Am. Med.*, February 25, 1905) discusses this subject at length, he asserts excessive purgation should

be restricted because it is enervating to the general system. It produces great irritation to the mucous lining of the bowel. It may add to the danger of ileus and paresis. Purgatives have very little effect in limiting the amount of extraperitoneal exudate and fluids. Instead of calomel and saline purgation, bland evacuants such as castor oil should be used before abdominal section. The use of suitable bland nonfermentative foods is desirable until just before operation in weak patients. After operation limit peristalsis; give only small quantities of food and drink by mouth. Rarely give opium. Enemas should be administered to relieve distention and cause peristalsis in downward direction, after normal peristalsis laxatives should be given as required.

OBSTETRICS AND GYNECOLOGY.

The Use of the Modified Champetier De Ribes Balloon.—Many measures have been advocated for inducing and shortening the duration of labor; none have given better results than the use of a conical cervical dilater, a Champetier De Ribes balloon, which best simulates nature's bag. J. W. VOORHEES (*Am. Jour. Obstet.*, January, 1905), who has suggested modifications of the balloons to increase their strength, advocates their use in dry labors in that the bags quickly start strong pains, rapidly dilate the cervix and plug the os, thus preventing the loss of more liquor amnii. In breech presentations it is not necessary to bring down a foot so soon and thereby prolonged pressure on the child is avoided. A bag should be introduced if pains do not start within twenty-four hours after the rupture of the membranes. In protracted labors the balloon strengthens the pains and shortens the first stage, thus saving the woman's strength and rendering the cervix in better condition for any operative procedures that may be necessary. In certain emergencies only should manual dilatation be resorted to. For the induction of labor the balloon is the most reliable of all methods. When the cervix is long and but little dilated and an anesthetic contraindicated, a bougie should be used in preference. In albuminuria and eclampsia the uterus is inert and a bougie often useless. If a bag is used even though there are no pains, dilatation can be brought about by traction on the tube. The plan advocated in treating eclampsia is to insert a bag at once, stimulate all the excretory organs, reduce arterial tension, temporizing only until the cervix is soft enough to stand an accouchement forcé without tearing and with little shock to the patient. In placenta prævia the balloon is also very reliable; it stops the hemorrhage, starts pains, softens and dilates the cervix and prepares the way for an easier and less dangerous delivery, for, when the largest balloou comes through, forceps can be readily applied or a version performed without difficulty. The gauze lampan is an efficient adjunct during the time required for getting ready for the introduction of the bag. In considering objections to the use of the balloons the fact that the membranes are occasionally ruptured is of no consequence. The placenta may be separated in placenta prævia but the bag arrests the hemorrhage. The presenting part may be displaced if the introduction is faulty and the bag too rapidly filled. Where the bag is expelled a long cord or one loosely coiled about the neck may prolapse, a complication that should be watched for. The balloons can be boiled and should give rise to no infection. No special introducing forceps or syringe are necessary. An anesthetic is employed only when it is necessary to dilate the cervix to insert the bag or when the cervix is very high, the patient very nervous, or the vulvular orifice narrow and sensative.

Perforation of the Uterus During Curettage.—Curettage is considered by the average practitioner a simple and easy operation, belonging to minor surgery—every beginner performs it. Perforation of the uterus during this operation has occurred at the hands of experts but is usually the result of carelessness and inexperience. W. HESSERT (*Am. Jour. Obstet.*, January, 1905) says that conditions which result in atrophy or softening of the uterus predispose to perforation. Among such conditions may be mentioned lactation, senile and postoperative atrophy. Hyaline and fatty degeneration and necrosis of muscle fiber may result from infection. In poorly nourished women after numerous pregnancies a softening of the uterus may occur, due to a separation of the muscle fibers by an edematous infiltration without degeneration or inflammation. Carcinoma, myoma, pelvic tuberculosis and pelvic abscess may also be associated with uterine atrophy and softening. General diseases, as leucemia, diabetes, nephritis, Addison's disease, tuberculosis, pernicious anemia, as well as acute infectious diseases, may be followed by uterine atrophy. When the uterus is soft and offers no resistance the expert operater may perforate, but will recognize the condition and act accordingly; a novice is likely to fail to recognize the perforation and inflict fatal visceral injuries. Perforation may be accomplished with a probe, sounds, curette, douch point, dilators, sponge tent or other instruments. The result of perforation depends on whether or not fluids have been injected (liquor ferri, lysal, sublimate, iodine, etc.) or infection carried into the peritoneal cavity, or visceral injury has occurred. In general the following principles should be observed to guard against perforation: (1) Accuracy of pelvic diagnosis as to size, position, mobility and consistency of uterus; presence of tumors and condition of adnexa. (2) The direction of the cervical canal and uterine cavity should be accurately determined by means of a graduated sound before introducing dilators. Dilitation should be done slowly, turning the instrument around in all points of the circle. (3) A sharp curette is best in the hands of the experienced. (4) Except in the presence of septic endometritis the use of the irrigator is considered superfluous. The treatment of such an accident should be expectant if it occurs after antiseptic precautions and has been done with a blunt instrument. Irrigation should be omitted and the uterus packed. If there is evidence that the intestine has been pulled down or otherwise injured by curette, placenta or volsellum forceps, the abdomen should be opened and the entire intestine examined. If there is an infection endometritis present an hysterectomy had best be done.

Subcutaneous Emphysema during Labor.—Cases of emphysema under the skin of the chest and the throat from rupture of some of the pulmonary alveoli from straining in labor have been reported, but an emphysema from any other source in this condition is thus far unknown. What is apparently the first instance of this kind is reported by H. T. HERMAN (*Zeitschrift f. Geb. u. Gyn.*, Vol. 53, No. 3) where the air gained access to the tissues under the skin not through the lungs, but through the nose or one of its accessory cavities. The patient, a primipara,

suddenly developed, in the later stages of her labor, a swelling of both eyelids, which gradually extended over the forehead, the face and the neck, and then invaded the abdomen down to the navel, the back and one arm. The characteristic evidences of subcutaneous emphysema were present, but the normal conditions returned on the seventeenth day of the puerperium. The author believes that there was some ulcerative process in the wall of the nose or the accessory sinuses which allowed the air to enter, as the patient admitted having had more or less trouble with her nose since her early life.

THERAPEUTICS.

The Toxic Effects of Formaldehyde and Formalin.—The widespread use of drugs in internal medication which generate formalin in the tissues, imparts great value to the researches of H. M. Fischer (*Jour. Exper. Med.*, February 4, 1905). The results of his investigations show that the inhalation of formaldehyde gas in even small quantities is followed by bronchitis and pneumonia. Formalin belongs to that rare group of poisons which are capable of producing death suddenly when swallowed. The introduction of formalin into the stomach is followed by the production of a gastritis which varies greatly in character. The duodenum and jejunum may also be involved in the inflammation. Intraperitoneal injections of formalin causes peritonitis of a fibrino-hemorrhagic character. The injection of formalin into the lungs is followed by pneumonia and bronchitis. The inflammation which follows subcutaneous injections of formalin is characterized by intense exudation. In whatever way introduced into the body, formalin is absorbed and is then capable of producing lesions in the parenchymatous organs. The injection of formalin or the inhalation of the vapors of formaldehyde produces cloudy swelling of the parenchyma of the kidney.

Treatment of Sciatica.—There is hardly any method of treatment, from simple rest in bed to articulation at the hip, which has not been tried to alleviate the pains of sciatica. According to J. Lange (*Münch med. Woch.*, December 27, 1904) the best results are obtained from injecting 70 to 100 c.c. of Schleick's solution into the sciatic nerve, directly where it issues from the sacrosciatic foramen. The injection is made after the skin has been infiltrated, and most patients will experience a sensation resembling an electrical shock as soon as the needle has entered the nerve. Occasionally it is necessary to give a second injection, but the relief in most cases is remarkable, even where morphine and other analgesics have been used for a long time. After effects are rare, but sometimes the patients complain of slight pain over the site of injection.

Treatment of Acute Suppuration by Bier's Compression.—Over one hundred cases of acute suppuration have been treated by A. Bier (*Münch med. Woch.*, January 31, 1905), by the method of venous hyperemia, so successful in chronic conditions. The technic is as follows: The limb above the suppuration is surrounded by several turns of a rubber bandage, so as to compress the venous but not the arterial circulation. The affected part should give the appearance of a fiery red edema, but should never look blue. The parts peripheral to the affected area are not bandaged, but participate in the swelling. In acute suppuration, the bandage should be worn ten hours daily; in very severe cases at least twenty to twenty-two hours. Thus for a suppurative tenosynovitis, the Esmarch is applied at ten o'clock in the morning and worn continuously until eight or nine o'clock in the evening. It is then removed and reapplied somewhat higher or lower. At eight in the following morning, the bandage is again removed and the limb elevated until ten o'clock. In some cases, frequent intermissions of one and a half to two hours are necessary. The presence of a lymphangitis in the affected limb is not a contra-indication. As a rule, pain disappears very soon after compression, pus will be absorbed or changed into serum, or else it will be converted into a cold abscess. In suppuration of the larger joints, the pus was never evacuated, nor were fistulous tracts, already present, enlarged, since passive motion, combined with compression, is the best method of removing pus.

The Night-Sweats of Tuberculosis and Their Cure, Especially by Veronal.—It was most plausible to take Cornet's view as to the cause of night-sweats, that they were to be looked upon as a symptom of the action of tuberculous toxins. Hr. v. Schrötter properly distinguished between sweats in the initial stage and in severe cases. In cases with fever, there was mostly a connection between fall of temperature and the outbreak of perspiration. In contrast to pneumonic cases, in which the outbreak of sweat brings relief, in feverish phthisical patients it caused extreme discomfort and weakened them to complete exhaustion.

Most medical men were in favor of endeavoring to overcome night-sweats. Salter, however, was an exception; he was of opinion that they should not be suppressed, as they excreted tuberculous toxins.

The patient should get accustomed to sleep in a cool room, lightly covered, and with open windows; regular and not too warm baths, or lukewarm or cold rubbings night or morning, or both. Salicyl powder, tannoform dustings, and painting with a 50 per cent. formalin solution. Brehma recommended a quarter of a liter of milk, with seven spoonfuls of cognac.

Of internal medicine the antipyretics did not do much. Atropine was in the front rank; it often did good, but it sometimes failed altogether. After atropine came agaricine in the form of a pill. It also relieves cough, but patients got accustomed to it. Camphoric acid also did good and guaiacamphol, also camphorate of pyramidon. Of other remedies he only mentions veronal, which in reduced doses is a very active remedy for night-sweats. It was given before bedtime, either dry or in tea, in doses of 0.3 grm. The first doses acted scarcely at all, with the second the night-sweat was generally less; after the third it usually ceased altogether. Sometimes one had to wait longer for the effect. In a few cases the dose had to be raised to 0.6 grm.

Treatment of Enteritis.—In enteritis, especially the tuberculous form, M. Perrote (*These de Paris*, 1904, No. 228) praises highly the action of methylene blue. It is not only a parasiticide; it also proves analgesic in the various nerve troubles and acts as cholagogue. The following formula is recommended:

℞ Methylene blue .....0.05 gme.
Sugar of milk .....0.20 gme.

Three or four times daily one powder.

After three days of the above treatment the diarrhea will generally cease. The drug should be pure and free from chloride of zinc.

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PHYSICAL EXERCISE WITHOUT APPARATUS.

THIRTY-FIVE years' experience as an instructor of students in Harvard's Hemenway Gymnasium and "as adviser of business and professional men, and twenty-three years as director of a normal school for the preparation of teachers of physical culture" combine to make the advice of Dr. Dudley A. Sargent, of Cambridge, worth having, and of promulgating, even among the medical profession—nominally experts in such affairs. This is theoretically. Practically, the actual book ("Health, Strength and Power" by name) bears out the *a priori* probabilities of its author's fitness to advise. Three elements especially of the substance of this popular manual are noteworthy from the medical view-point and commend it as worthy even of editorial discussion. First, its author is a soundly scientific and fadless physiologist and hygienist; second, it makes possible adequate exercise without apparatus, that is, at any time and any place; third, it emphasizes what is physiologically certainly the essence of neuromuscular exercise: "the chief essential of physical training is *voluntary* movement."

The first two of these, although of much importance and rare among the numerous recent "systems" of bodily exercise, need no special notice, but to even some physicians it may not be at once obvious that voluntary movements (that is movements made with an effort of adjustment), are of more value than routine exercise which soon becomes habitual and more or less reflex. The physiological conditions seem to be somewhat as follows:

The benefits of physical exercise arise from its stimulation of the lymph-flow (which stands for a heightening of body-metabolism generally), of the respiration, of the circulation, of the muscles (constituting more than half the mass of the body, and last, but certainly not least, of the nervous system. The muscles and nerves constitute together the neuromuscular mechanism, the two parts always working together, never either alone; indeed, they are properly one, *the master mechanism of the organism.* But just as a child learning to read develops its reading-faculty much more rapidly by reading always unfamiliar matter, and that not only because new words are thus more quickly acquired but also because of the additional effort thus necessarily expended, so in exercising this neuromuscular mechanism additional benefit accrues to both the nerves and the muscles by using a large variety of easy exercises requiring a degree of conscious effort if they are to be perfectly performed. In this way the part of the neuromuscular organ constituted by the central nervous system gets exercised beneficially and in a way quite otherwise than that of mental exertion. Exercise of this sort in fact approaches the benefits of outdoor games of exercise and skill such as tennis and golf, without being limited by the time and place and outfit these latter demand.

From a recital of a few of the fifty-six exercises which Dr. Sargent describes, may be most readily seen their interesting variety. There are imitations of wood-chopping, swimming, striking the anvil, rope-pulling, fencing, throwing the discus, windmill, mowing, pitching hay, grand salaam, fire engine, sawing wood, rowing, rocking the boat, bowling and locomotive; these will suffice and serve as types of the remainder also. It is obvious that movements like these, fifty-six of them, run well through the range of possible extensive bodily motions, and that if performed repeatedly, from five to a hundred times in various cases, furnish a very wide range of muscular exercises coordinated into the desired postures by effort of the central nervous system. It is told in separate chapters which of these are best adapted to children and which to youth, girls, and women, while special stress is laid on the

adaptation of exercises for persons advancing beyond middle-life, and for those passing into old age. But for Dr. Sargent, as for the rest of the world, these set exercises are considered only necessary substitutes and complements of the more useful outdoor pursuits they represent. Who, indeed, would advise a weak pretense of pitching hay in one's bathroom save in winter when the hay fields of one's country home are deep beneath the snow; and who would saw wood beside his bed if there were cord-sticks piled high in the yard outside? On the other hand, windmill, fire engine and locomotive would certainly impress the neighbors less humorously if done indoors (unless, indeed, the exerciser be a small boy), whereas rocking the boat in the bathroom is obviously less foolish than rocking the boat out of doors.

More than a hundred photographic illustrations made from these exercises, as performed by a skilled model, show excellently the various attitudes and expressions involved, illuminating the descriptive text in a very satisfactory and pleasing manner.

One cannot help believing that all persons of sedentary habits, could they be induced to systematically practise such comprehensive movements as these, would promptly feel the benefit in every organ of their bodies. But as every physician knows only too well, the majority of those persons who need most such activity are so deep in the slough of habitual inactivity that not even the thought of a needlessly early death itself is strong enough to drag them into the habit of exercise which would save them. Habit is life's great law, and laziness is many a man's life-habit still, despite the awakening to physical culture, which is passing over the earth, despite, too, his doctor's warning of hardening arteries and of weakening digestive muscles. Yet here, if anywhere, during the larger part of the year when outdoor activity is impracticable, lies the "way out," namely in such a wide range of interesting, easily learned, general bodily exercises so various as to require voluntary effort to acquire them and as not to become monotonous and altogether mechanical. It seems to us indeed that the medical profession must welcome Dr. Sargent's little book as a substantial, because practicable, contribution to the aids to longer and more vigorous and happy living. It inculcates and well illustrates that harmonious adjustment of part to part and of part to whole wherein bodily health chiefly consists. And in a vast majority of cases it is only necessary to keep the bodies vigorously well and the minds will find no excuse to quarrel with the evils of a world even as wearisome as this,—for thus, fortunately, are we created.

PAVLOW AND DIGESTIVE PHYSIOLOGY.

THE recent announcement of the award of one of the Nobel prizes to Professor Pavlow, Professor of Experimental Medicine at the Imperial Institute of St. Petersburg, brings once more into prominence the work of a man who has done more perhaps than any other in our generation to throw light on the complex processes of digestion. His experiments and observations included every portion of the digestive tract from the salivary glands to the intestines, and on every one of them he has succeeded in shedding new light.

While it is not generally realized the progress thus made is much more significant for clinical medicine than advances, so-called, in physiology usually have been. His observations have shown especially the importance of the individual element, of what the difference in the preparation of food and in the form in which it is consumed means to the digestive tract, and how wonderfully varied can be the reaction of various digestive glands not alone to food itself, but to the varying conditions of food administration.

An excellent example of the character of his work is to be seen in his investigations with regard to the salivary glands. Notwithstanding the fact that the mouth is said to water when particularly pleasing food is presented to an animal, practically no saliva at all appears in the mouth of the dog during the eating of raw meat, though the dog relishes this class of food very much. If the raw meat, however, be given powdered, then saliva is secreted in large quantities. The same thing is true for all forms of dry food, so that the secretion from the parotid gland at least is dependent not upon the kind of food, but on the form in which it is consumed. If small stones are given to the dog, there is no secretion of saliva, even though he may play with them in his mouth and apparently thus be sure to excite salivary secretion. On the other hand, if sand be given, there will be a large amount of watery saliva secreted, evidently in order to help the animal in getting rid of the offensive material. Almost the same observations can be substantiated with regard to

the submaxillary gland, and it is evident that a large amount of watery saliva means not so much a help to digestion, as an effort of nature to get rid of materials in the mouth that are not easy to swallow.

With regard to the glands of the stomach, very interestingly varied secretive reactions to various kinds of food are found. If to dogs meat be given, then a gastric juice containing the highest degree of acidity is secreted. For a milk diet a distinctly lessened degree of acidity of the gastric juice is always to be observed, while for food composed mainly of cereal products, the lowest amount of acid is secreted. In a word, the character of the gastric secretion is specific for each kind of food. The character of the secretion is different also as regards the length of time and the rate at which it appears. When the main element of the feeding is bread, the secretion continues for nearly ten hours. With milk it lasts for only six hours, and the meat gastric secretion is for an intermediate time. With meat, the maximum of secretion is reached toward the end of the second hour. With bread the maximum occurs during the first hour, while with milk it is during the third hour. It is thus seen that the stomach reacts in its own way with a sort of instinct, and that hard and fast lines as to the character of the stomach secretion cannot be drawn without great risk of error, unless the specific reaction in the individual has been observed.

It has been the custom of physiologists generally to insist that the mechanical irritation caused by food is sufficient to arouse gastric secretion. Such experiments conducted under Professor Pavlow's direction seem to prove entirely futile. Irritation, for instance, with a feather, or with a quantity of sand, though the mucous membrane of the stomach might be expected to be particularly susceptible to such forms of irritation, do not give rise to a single drop of secretion. The reason for the mistakes in the older cases was that the psychic element which entered into all digestive processes had not been eliminated with sufficient care. If a dog is placed in the neighborhood of food, then a certain amount of secretion in preparation for that particular kind of food is sure to take place. This element of the digestive function Professor Pavlow has put on a clearer plane than ever before, though showing that it is not so important as some of the exaggerated notions have suggested.

The digestive mucous membrance has, in Professor Pavlow's experience, a distinctively selective action and sort of capacity for recognizing the qualities of substances presented to it. Any one stomachic selective action may be the result of innate natural qualities or may be acquired. Digestion thus becomes eminently individual in character, and the existence so commonly noted of likes and dislikes, whose influence for facile digestion or the opposite, becomes easier to understand. It is not so much that the gastric juice may be lacking in some important element, but that the specific reaction of the digestive glands which furnishes just the proper gastric juice for a special kind and form of food is lacking, that constitutes the problem of digestive disturbances. This takes away much of the value of the investigation of stomach chemism, always an unsatisfactory subject, but it sends us back to the clinical study of the patient once more, and this is ever a fruitful field for important and enduring progress.

A LARGE ORDER.

There was a time in the history of medicine when the physician was chemist, botanist, pharmacist and healer. But that was many, many years ago. Since that time social relations have become very complex, but none more so than the relations of pharmacy to medicine.

We venture to assert that there are few, if any, physicians or pharmacists, or bodies of the same, who are conversant with the many complicating phases of these relations.

From time to time certain features that concern the medical profession very closely have received no small amount of criticism on the part of reformers, and sporadic attempts have been made to adjust certain questions which have been deemed prejudicial to the best interests of medicine.

One of these problems has concerned the ethical stand that the profession, as a whole, should adopt toward the exploitation of proprietary remedies. At first sight it seems an easy problem to solve, but in reality it has shown itself to be one of extreme difficulty to grasp in its entirety. A beginning, however, has to be made, and the most radical step that has thus far been contemplated has been recently outlined by the *Journal of the American Medical Association* (March 4, 1905).

Writing on "The Secret Nostrum *vs.* The

Ethical Proprietary Preparation," it plunges at once into one side of the subject with a courage that deserves praise and an insight that commands the highest respect for its intelligent grasp of an intricate social question.

A sharp distinction is drawn between the "patent medicine," which is exploited to the public, and the "proprietary" manufactured for the physician's use—not a distinction, however, from one point of view, since both are "patented," or "copyrighted," as to name or as to contents. With the so-called "patent medicines" we have nothing to do. A careless government permits their exploitation and we may have our opinions as to their effect on the people, but with that side of the question the *Journal* does not at this time concern itself. It would examine the other group, the group which it proposes to consider was originally intended as examples of elegant preparations of standard formulæ and were expected to reflect the advances of the pharmaceutic art, but in many instances they have, in late years, fallen from grace, and are neither a credit to their makers nor is their use a credit to the intelligence of the prescriber.

But degrees of degeneration are inevitable, since biological laws hold sway even in commercial evolution, and how may the sheep and the goats be separated is the problem at hand.

For more than a year the officers of the Association have considered the plan which they offer —namely, a "Council on Pharmacy and Chemistry" composed of fifteen members, all reputable men, who will examine the "composition and status of the various medicinal preparations that are offered to physicians and which are not included in the United States Pharmacopœia or in other standard text-books or formularies." Such examination is to be thorough and exhaustive, else it is of little value. This Council is to prepare a book on "New and Non-Official Remedies," to be published by the *Journal*, which shall "supply necessary and desirable information concerning those which it considers unobjectionable." Such information is made in accordance with ten rules which we publish in our news column in this issue, page 511. The Council will not pass judgment on the therapeutic value, but on the ethical status only of these preparations. Pharmacologic and therapeutic data are, however, to be included.

Such in brief is the scheme of the *Journal* of the Association to bring some light out of the present darkness.

That we as practising physicians need light there is not the slightest doubt, and we welcome most heartily the effort on the part of the *Journal* to pull our chestnuts out of the ethical fire. We are at one with it in its efforts to in any manner improve certain unfortunate tendencies in modern pharmaceutical practices, and while we feel that the plan outlined has many admirable features, we regret that the Association has been hastened in its formulation by the cackle of some young and eager reformers, and has presented to us a scheme which we believe to be very incomplete and one that will lend itself to much injustice, to distrust and to misconception.

It will be impossible to prejudge such a comprehensive plan in its entirety, but certain points that appear on the surface offer themselves for discussion, since "criticism and suggestion will be welcome."

If the book "does not pass judgment on therapeutic value," and yet is to be "an accessible authoritative work of reference," why include therapeutic data, particularly if the first edition is to be hurried and to contain only a small portion of the field? Does the Council recognize how big the field is likely to be, and is the Association to furnish the funds to pay for a small army of analysts? One "competent chemist" is ludicrously inadequate. Organic analyses are not things of a day or a week.

May we suggest that we are under the impression that certain of the members of the Council are known to be the "Consulting Chemists" for some manufacturing houses, a fact not reprehensible in itself, yet certainly not a desirable factor.

While the Council enumerated is to pass judgment on the status of the preparations more particularly from the standpoint of the contents, we would like to see some practising physicians on the list of the Council.

Laboratory pharmacologists and chemists are too far away from the problems of the practice of medicine to enjoy the confidence of the practitioners of the country. It is true that a subsidiary staff of medical consultants "is to be formed," but nothing should be done until the staff is formed," and if therapeutic data are to be included, certain of their number should be on the Council to keep it along practical lines—not figure-heads, and above all, not men well known to be so busy that they hardly have time to eat between consultations, and who go through their wards in a whirlwind.

Other problems arise by the score; they must be thrashed out one by one, and we defer them until a later time. We are in most hearty accord with the hopes of the *Journal* in its proposed plan. We trust, however, that it will make haste slowly, else by foolish counsel a worthy conception may end in abortion.

ECHOES AND NEWS.

NEW YORK.

Meningitis Increasing.—According to the report of the Board of Health for last week, the total of all diseases except meningitis decreased, as compared with the previous week. Epidemic cerebrospinal meningitis showed on increase. There were 57 deaths from this cause last week, against 49 for the previous week, in the Borough of Manhattan alone. In the whole city the number of deaths from the cause last week was 78.

Resign from Lying-In Hospital.—A governor, a director, three deputy directors, five attending physicians, and two pathologists have resigned from the management of the Lying-in Hospital, at Seventeenth Street and Second Avenue, as a result of dissatisfaction with the methods of Dr. J. W. Markoe, the governor, who is most closely allied with J. Pierpont Morgan, who built and partly endowed the hospital. Dr. Markoe has always been a figure of importance in the institution, and since the absence in Europe of the superintendent, Dr. W. H. Spiller, has been more powerful than ever. Several of the younger doctors connected with the hospital, are said to have complained that his treatment of them was not such as was called for by professional etiquette. As a protest against these conditions, the following resignations have been sent to the board of governors: Richard T. H. Halsey, governor; Dr. H. McN. Painter, director, Dr. R. C. James, Dr. A. E. Brown, and Dr. W. S. Stone, deputy directors; Dr Robert Watts, Jr., Dr. Fellowes Davis, Jr., Dr. Percy H. Williams, Dr. James I. Russell, and Dr. A. S. Morrow, attending physicians, and Drs. Walstein and Farley, pathologists.

Medical Inspectors Organize.—At a meeting of the Medical Inspectors of Schools of the Health Department of the City of New York, held on Friday, March 3, 1905, at the Academy of Medicine, a society was organized for the promotion of good fellowship, and the study of problems of hygiene and public health, under the name of the Society of Medical Inspectors of the City of New York. Medical inspectors of any of the divisions of the department, and in any of the boroughs, are eligible to membership. The first meeting was held under the auspices of a Committee on Organization, headed by Dr. Edward M. Thompson, as Chairman, who presided at the meeting. A constitution was adopted and the following officers were elected: President, Dr. Augustine C. McGuire; Vice-President, Dr. Otto Jahn; Secretary, Dr. Edward M. Thompson; Treasurer, Dr. Leopold Marcus. Executive Committee: Dr. Joseph Baum (Chairman), Dr. Helen Knight, Dr. Samuel A. Buchenholtz, Dr. Thomas A. Neafsey and Dr. DeSantos Saxe. The society will hold monthly meetings and will invite the higher officers of the Department, as well as other sanitarians of repute, to address it on various special topics. Scientific papers will also be read by members, and good fellowship will be promoted by means of annual dinners, etc.

Pure Food in New York.—Under the above caption the New York *Times* prints this editorial: "Men become doubtful of the system of government of which they naturally desire to be proud when the only way in which a bill establishing standards of purity in food can be passed is to make it a party measure and pass it—not because it is right and will make for good, but because it can be turned to party advantage. Recent investigations by the Department of Agriculture show very clearly that the country is flooded with food preparations unfitted for use and involving more or less danger to life and health. The bills drafted to safeguard the public interest in this respect, through the regulation of inter-State commerce, were defeated in the United States Senate by a lobby so powerful that it made of no effort the clearest proof that such laws were imperatively demanded to check the inter-State traffic in adulterated and poisoned food preparations. These same investigations further showed that the laws of New York are deficient in this respect and do not adequately protect the consumer against expedients in dilution and adulteration from which he suffers more than pecuniary injury. The Health Committee of the New York State Senate seems to recognize its duty in this matter, and will report a bill which it hopes to pass by making it a party measure. It will endeavor to make the present regulations more effective by fixing specific standards to which merchandise of this character must conform. Such a law should be passed, even if incomplete and in certain details unintelligent, but there should be a higher reason for passing it than that a partisan advantage may be gained therefrom. However, this may be an instance in which the result is of more consequence than the method by which it is reached. New York State should lead in legislation of this character. As it is, it is far behind many States of less commercial consequence."

Some Aspects of Commercialism.—The *Evening Post* in commenting on professional commercialism and the evil of the spread of the money-making spirit, writes:

"The evil also spreads from commercial life, where making money is the avowed ideal, to the professions, in which there is presumably a somewhat less selfish aim. A lawyer who would plan and help to execute a fraud on the Government is obviously unfit for the bench; and yet a special meeting of the State Bar Association was necessary in order to muster a majority against whitewashing Justice Warren B. Hooker. The medical profession boasts a very strict code of ethics. Curiously enough, according to *American Medicine*, the physicians of Providence are receiving the following letter from a company which manufactures drugs:

Dear Doctor:—"There are a few physicians in Providence that have not taken advantage of our recent, liberal, profit-sharing offer, and we regret to say that you are one of them. This ought not to be so. The plan should appeal to you, as nothing is asked of you but what is strictly ethical, namely, prescribe our preparation whenever indicated only when you believe it to be equal or better than any other similar preparation. See that your patient gets the genuine article, keep a memorandum on the blank sent you, and when full, sign and send to

us, receiving in return our check for $10. A very simple matter, and as one physicion wrote us, after having received several such checks, 'your plan is a good one and ought to be productive of good returns both to the company and to the physicians.' We agree with him. Do you?

Hoping to hear from you, we remain,

Fraternally yours,

"—— —— ——."

Evidently enough doctors are working for this 'strictly ethical' graft to make it worth while for the company. If this circular means anything, it means that in the presence of some physicians the old jest about an alliance with the druggist and the undertaker is twitting on facts."

PHILADELPHIA.

Election of Resident Physicians.—The following members of the senior class of the University have been elected as resident physicians, each to serve two years in the University of Pennsylvania Hospital: Eldridge L. Eliason, S. W. Moorhead, G. M. Pearsol, Frederick Prime, Jr., and H. G. Schleiter.

Sale of Patent Medicines to be Curtailed.—Senator Charles L. Brown will introduce a bill into the legislature which provides to regulate the sale of patent and proprietary medicines containing alcohol. According to the bill no person, firm or corporation shall sell any of these medicines except upon a written prescription from a regularly registered physician.

Court's View of Insanity.—In giving instructions to the jury, how to discriminate between a crime committed by an insane person and one who pretends insanity, Judge Schwartz, of Norristown, said: "A man may act queer and talk foolish, yet if he knows the difference between right and wrong, if he can restrain himself from committing wrong acts, when he wants to, the law will not excuse him if he commits a crime."

Governor Vetoes Food Bill.—The bill which prohibited the sale of fruit syrups prepared fruits and fruit products containing more than one-fourth of one per cent. of sodium benzoate or the same amount of color obtained from harmless vegetable substances, was vetoed by the Governor upon the ground that this bill contained nothing which is not in the Act of 1895 bearing upon this subject. The Governor holds this bill unconstitutional because it repeals an act but does not refer to the act which is to be repealed.

The Pennsylvania State Veterinary Association.—At the annual meeting of this organization, Dr. Leonard Pearson, of the University of Pennsylvania, read a paper entitled "Vaccination of Cattle against Tuberculosis." In this paper he gave an account of the experiments of injecting into 100 heads of cattle virulent bacilli of bovine tuberculosis. Recently four of the injected animals and two not injected were killed. The six head having been stabled for two years with highly tuberculous cows. At the post mortem he found that the injected cows were free from the disease, while those not injected were tuberculous.

Panama and Yellow Fever.—In a lecture before the College Club, Miss Dora Keen, after giving a description of Panama and Colon and pointing out the enormous undertaking of the canal to be constructed, called her hearers' attention to the sanitary problem before this country. She informed the audience that yellow fever was the most difficult question to be solved. Owing to the inadequate supply, much of the water must be brought from the interior of the country in tanks which are, in many instances, allowed to stand uncovered in the open air, consequently favorable sites for the develpment of mosquitoes are established. Then too, she points out, that in order to limit the travels of the ants, the legs of chairs and tables are placed in cans or cups of water; these serve also for breeding places.

Philadelphia Pathological Society.—This society meeting was held March 9, 1905. The scientific discussion was opened by Dr. Allen J. Smith who, with B. S. Beeder, presenting specimens of the *Solenophorus megacephalus.*" Dr. Smith, in the course of his talk, stated that this was a parasite of the snake. The head of the parasite has two cups which are tubular, and each opens into an alimentary canal. This parasite, he said, was described in 1825, and since that time at least 25 other authors have written of it. He stated that the worm is slender, measures sometimes seven inches in length. The links are broader than they are long, except toward the end of the parasite they are nearly round. He has never seen the eggs. All the links which he obtained were sterile. The suckers, he merely suggests may have a cell lining, which secrete a toxic substance that is responsible for the anemias which occur in the parasitic diseases. Dr. H. R. Alburger presented (1) Secondary Sarcoma of the Liver. Of this growth, he said, the primary tumor was in the eye where it has been seen ten years before death. (2) Hypertrophy of one Kidney and Atrophy of the Opposite Organ." From his talk it was elicited that the latter is to be regarded as a hypoplasia instead of an atrophy. (3) Amyloid Disease of the Liver Due to Potts' Disease. Dr. H. Fox then read a paper on "The Nature of Paratyphoid Fever and Its Allied Infections." During the course of his paper he referred to an instance where the paratyphoid "B" was isolated for gallstones. The frequency of the two types of the disease are five cases of the paratyphoid "B" to 1 of the "A." Hemorrhage is more frequent in the type due to the "A" bacillus; "B" often produces suppuration while "A" may suppurate. The "B" bacillus, he said, stands nearer the bacteria of meat poisoning. Shotmüller and one other author, he stated, have found interagglutination of the paratyphoid "B" and "A" and the *Bacillus typhosus*, which incident he has found in his experiments and observations. The bacillus paratyphoid "A" resembles the *Bacillus typhosus*, while the paratyphoid "B" produces a condition very much like septicemia. Dr. Riesman exhibited four specimens of "Ulcerative Endocarditis." The first case presented symptoms like typhoid fever, at one time the patient developed severe pains in the abdomen, and the diagnosis of perforation was considered. His second case was purely cardiac in type, while the third presented symptoms of pyemia.

Philadelphia Medical Examiners' Association.—The meeting of this organization was held March 7, 1905. Dr. E. H. Hammill, medical director of the Prudential Insurance Co., addressed the society upon what he entitled "Cullings from the Desk." He spoke of the following: (1) The Responsibility the Medical Examiner Bears to the Company. He dwelled upon that point but a short time. (2) Perfunctory Service was the next point. He would discard the printed blank because it tends to make the examiner mechanical, so that he neglects orig-

inality. (3) Latitude of Inquiry. He claims that Medical examiners are too narrow; they neglect to ask questions which should have been asked but were omitted because they were not specified in the blank. Here again, he asserts that the blank is a disadvantage. He maintains that 20 per cent. of the cases reported at the home office need further correspondence because the reports sent lack points that need emphasizing. (4) The Moral Hazard of the Applicant. The information necessary to clear up this matter can be obtained from the environments, business, home, and manner of dress of the applicant. This point many examiners fail to consider. (5) Haste of Conducting Examinations. He spoke of the bad risks that are assumed by the company as a result of it. (6) Incomplete Medical Reports. Further communication consumes time and may produce prejudice. (7) Insufficient Information in the Report. This, he said, places the director at the home office to take too much for granted. (8) Occupation of the Hazard. Very often the name of the occupation is too technical, so that the director has not the slightest idea of character of the applicant's work. (9) Height and Weight. Upon this point examiners left too much unsaid. They do not designate how much below or how muoh above the standard table. (10) Examiner's Lack of Knowledge of the Home Office, Usage and the Instruction Book. (11) He laid a great deal of stress upon legible writing. (12) He urges that concise statements be given. (13) Relation of the Agent to the Examiner. This should be cordial and can be accomplished and maintained by diplomacy on the part of the examiner. (14) Thoughtful Advice. This will assist the director very often in deciding what to do with an applicant. (15) Prompt replies are of great benefit to both the examiner and the home office. (16) He advised the examiners to visit the home office whenever possible. (17) He cautioned the examiners about giving the agent knowledge of the examination, and reticence of the cases to be examined. (18) He thought that the home office should be advised at what time the patient was examined and at what time the report was mailed. (19) He dwelled long upon the identity of the applicant, this can be done by means of a card, occupation, manners, letters or initial on the clothes. A lengthy discussion followed.

Philadelphia County Medical Society.—The meeting of the organization was held March 8, 1905. The scientific part of the meeting was opened by Dr. Charles W. Burr, who "Exhibited a Patient with an Old Fracture of the Cervical Spine." He informed the society that the patient fell from a wagon in 1898, from which fall he was made unconscious for some time, and when he regained consciousness he was found paralyzed in the arms, but had slight motion in the legs. Priapism did not occur. When Dr. Burr saw him some time later he could walk but could scarcely use his arms. There was some disturbance of the bladder muscles, which improved later. After a long stay in the hospital he gained considerable strength in his arms, and when he left could use them fairly well. After leaving he had several attacks of severe pain in the arms and shoulders and back but these soon passed away. At the present time the patient has a traumatic pachymeningitis of the cord. The X-ray pictures taken showed a fracture of the fifth cervical spine and lamina, a forward displacement of the fourth and backward displacement of the fifth cervical vertebra. Dr. J. Madison Taylor then read a paper on "How Can the General Practitioner Profit by Preventive Medicine." In considering this question he maintained that preventive medicine could not be succesfuly accomplished until the physicians and the people cooperated, not until the doctors are so skilful that they can predict that certain conditions in the individual will lead to disease, and not until they are able to recognize prodones of disease. He suggests that physicians be allowed access to homes to examine members of the family that are apparently in health with the view of determining derangements which may lead to disease. Especially should this be done with children. Doctors should be allowed to go to the nursery. The physicians acting as inspectors of the public schools, he thinks, should have greater authority. He condemned very strongly the use of what are known as tonics, and he also condemned narcotics and the use of proprietary preparations. Dr. W. Wayne Babcock read a paper on "The Osmic Acid Treatment in Tic Douloureux." He stated that although many failures, cases have been injected with this substance with complete anesthesia and relief of the pain for periods of time varying in length, some being four years. There is no danger of absorption of the osmic acid. The nerve is exposed and the aqueous solution is injected directly into the nerve trunk at different points and it is advisable, he said, to inject some at the foramen where the nerve escapes from the skull. The operation can de done through the mouth so that no scarring results. The last paper was read by D. G. B. Harlan on "Problems of the Treatment of Tuberculosis of the Larynx. He maintained that the tuberculous condition in the larynx is most frequent on the cords and the arytenoid folds. He announced that this condition affected the larynx as (1) a superficial ulcer; (2) infiltration of the mucosa; (3) tuberculoma; (4) deep ulceration. When in tuberculosis the larynx is affected by no other disease the prognosis is good. He reported an obstinate case of tuberculosis of the larynx, which was treated with the X-ray; the results were very good. Upon the ulcers he applies lactic acid.

CHICAGO.

Dr. Lydston Honored.—Dr. G. Frank Lydston was recently elected a Fellow of the London Society of Authors.

Hospital Fire.—On March 2, a fire broke out in the Chicago Union Hospital, during which the nurses and attendants carried fourteen patients safely from the burning building, and then assisted in preventing the spread of the flames until the fire companies arrived. The extent of damage to the building was about $25,000.

Medical Bills Introduced into the Senate and House of Illinois.—A bill (No. 171) providing for the appointment on the State Board of Health of two regular, one homeopathic, one eclectic, one physiomedical and one osteopathic member, has been favorably reported on by the Committee on Judiciary Department and Practice. Senate Bill No. 171, revising the present medical practice act, and providing for the regulation of regular, homeopathic, eclectic, physiomedical and osteopathic practice, is being considered by the Committee on License and Miscellany. Senate Bill No. 225, for an act to establish a State Board of Examiners of

Registered Nurses, and Senate Bill 226, for an act to regulate the practice of dental surgery, have been approved by the committees to which they were referred. Dr. M. G. Reynolds, of Aledo, Ill., a member of the State Legislature, has introduced a bill making it the duty of the State Board of Health to see that diphtheria antitoxin be kept in each county seat in the State for sale to physicians, and that supplies be furnished to the poor free of charge on the order of the overseer of the poor. The State Board of Health has endorsed this bill.

GENERAL.

University of Michigan.—Founders' Day, the anniversary of the founding of the medical department at the University of Michigan, was celebrated February 22 by the Medical Society. The meeting was held in Sarah Caswell Angell Hall. A portrait of the late Dr. A. B. Palmer was presented to the University.

Medical Study Tour in Germany.—The medical study tour in Germany this year will start from Munich on September 13. The tour will comprise visits to the following watering places and health resorts: Ischl, Reichenhall, Berchtesgaden, Gastein, Gossenass, Levico, Roncegno, Riva, Gardone, Solo, Arco and Meran, where the tourists will arrive in time for the meeting of the German Association of Scientists and Physicians which is to be held there this year.

Society of Medical Phonographers.—The January number of the Phonographic Record of Clinical Teaching and Medical Science, which is now issued quarterly instead of monthly as formerly, contains a paper by Mr. C. W. Cathcart, dealing with the subject of recent methods of diagnosing the relative conditions of the two kidneys in surgery, which is well worth study, and one by Sir William Gowers on syphilitic disease of the brain. The number also contains the annual report of the Honorary Secretary, Dr. Fletcher Beach, of the Society of Medical Phonographers, which shows that, although the society is doing good work, it is in want of new members, who may be either qualified medical men or students.

Russian Universities.—The festal celebration arranged in honor of the one hundred and fiftieth anniversary of the foundation of the University of Moscow, which fell on January 25, was postponed, writes the *British Medical Journal*, on account of the disturbed state of the political atmosphere. At the beginning of the present year the total number of students was 5,489; of these 1,349 belonged to the Faculty of Medicine. The teaching staff comprised 72 ordinary and 17 extraordinary professors; of the former category 25, and of the latter 9, belonged to the medical faculty. The University of Charkoff completed its first century of existence on January 27, but, as at Moscow, the anniversary was allowed to pass without formal celebration. The number of students is 1,486.

Need Not Wed Infected Person.—"If tuberculosis is an infectious disease which passes from parent to offspring, then it is against public policy for such marriages to be permitted, and no person should be mulcted in damages who breaks a promise he has made to marry such an affected person." That was the opinion rendered by Superior Judge Albertson yesterday in passing upon a motion to strike out an interrogation propounded to Rosena Grover by Mayor Zook, of Ballard, in a suit in which the young woman seeks to recover from him $5,000 damages for breach of promise. In the answer filed by the Mayor he admitted that he had promised to marry the woman, and would have done so had he not discovered, after the promise was made, that she was affected with tuberculosis.

Medical Sociology.—A society for the study of questions of social medicine and hygiene and medical statistics was formally constituted in Berlin on February 16 at a meeting attended by a large number of medical practitioners, political economists and sociologists. Prof. Mayer, of the Imperial Statistical Bureau, Dr. Dietrich, of the Russian Cultus-Ministry, and Prof. Lassar were elected presidents. Dr. Rudolph Lennhoff, editor of the *Medizinische Reform*, and Dr. A. Grotjahn, medical editor of the *Jahresberichte für soziale Hygiene und Demographie*, was appointed secretaries, and Dr. George Heimann, of the Statistical Office of the city of Berlin, treasurer. The membership of the new society already amounts to 89, and includes medical practitioners, official statisticians, and persons interested in social politics.

Cremation in France.—The report recently presented by MM. Georges Salomon and Bourneville to the Société pour la Propagation de l'Incineration states that the number of bodies cremated in France increases year by year. The total number of cremations carried out in Paris from August 5, 1889, when the method first came into use in France, to December 31, 1903, is given as 67,286. While the total for 1890 was 3,388 that for 1903 was 6,654. It must be pointed out, however, that these figures, taken at their face value, give a very misleading impression as to the progress of cremation in France. In one-half of the total number of cases, the remains cremated were limbs and other fragments of humanity from the hospitals, and of the other half a large proportion consisted of stillborn children and fetuses. Of cremations in the proper sense the total number was 3,151; the number of dead persons whose bodies were disposed of in this manner, which was 46 in 1889, rose in 1903 to 306.

Clinical Meeting at the Massachusetts General Hospital.—A clinical meeting was held March 10, at the Massachusetts General Hospital. Dr. J. G. Mumford presided. Dr. Arthur Cabot showed a case of sarcoma of the prostate and described the very few other cases which he had been able to find in the hospital records. The symptoms, operation, pathology and results were carefully gone over.

Dr. James M. Jackson spoke on Neutral Bromide of Quinine in the Treatment of Exophthalmic Goiter. He showed five cases, the severest ones, which he had had under this treatment. All except one who had not followed treatment faithfully were markedly improved. He gave the results in detail in the 50 cases he had seen, and in the 25 which he had been able to follow through in detail. He did not claim any specific action for bromide of quinine, but thought that it did work better than any remedy which he had yet found.

Dr. R. H. Fitz spoke on Pericardial Paracentesis. He had looked up the cases in the hospital, and those in which the condition was found not diagnosed at autopsy. He described in detail a case in which although the signs were unmistakably those of a large pericardial effusion, yet after repeated tapping nothing was found. After death a needle was put in the xyphoid angle and a pint of pus obtained. On autopsy that remarkable and rare condition was

found, an interpleural lipoma of large size, which had prevented all former attempts at tappings from succeeding. He described one other case of this condition. Dr. E. A. Codman gave a preliminary report in a paper on Periarthritis of the Shoulder Joint, showing several patients.

Dr. Oscar Richardson spoke on the bacteriological basis of the surgical technic in wounds infected with tetanus. He described some experiments which he had done along this line.

Dr. C. L. Scudder spoke on Stenosis of the Pylorus in infancy.

French Doctors before Molière.—In an article on French doctors before Molière, which appears in the *Practitioner* for February, it is stated that the practice of wholesale bleeding was introduced in the fifteenth century by Leonardo Botalli, who was physician to Charles IX. and Henry III. If a man was ill he was bled to let out the evil humors; if he was well, to prevent their formation. It was an accepted dogma of the medicine of the day that the human body contained twenty-four pounds of blood, of which twenty pound could be withdrawn without causing death. Botalli being asked whether the removal of so much blood did not weaken people, replied that the more stagnant water was withdrawn from a well the more fresh pure water came up; the more a nurse suckled a child the more milk she had. Even so, he held, was it in regard to the blood. Strong young men were bled every month, old people from four to six times a year. Ambroise Paré bled a man of twenty-eight years 27 times in four days, and records the fact "to encourage the young surgeon not to be timid in drawing blood in cases of acute inflammation." Louis XIII. was bled 47 times in one year by his physician Bouvard, and in the reign of Louis XIV. that "sanguinary pedant" Gui Patin, boasts in his correspondence of his exploits with the lancet. He calls bleeding "one of the principal mysteries of our art." He showed the strength of his faith in the mystery by ordering his wife to be bled 12 times in the course of a pneumonia and his son 20 times during a continued fever. He bled an infant three days old and a child of seven years 13 times in a fortnight. Patin had himself bled seven times for a common cold, and he relates like things of other physicians. He records with indignation that a physician—Guy de Labrosse—died without having been bled. Venesection had been suggested, but the dying man preferred to die unbled. For this Patin treats him as a blasphemer—and worse. "The Devil," he says, "will bleed him in the other world as he deserves to be—the scoundrel, the atheist!"

Council on Pharmacy and Chemistry.—The following ten rules are adopted to guide the Council on Pharmacy and Chemistry of the American Medical Association: (The term "article" shall mean any drug, chemical or preparation used in the treatment of disease.)

Rule 1.—No article will be admitted unless its active medicinal ingredients and the amounts of such ingredients in a given quantity of the article, be furnished for publication. (Sufficient information should be supplied to permit the Council to verify the statements made regarding the article, and to determine its status from time to time.)

Rule 2.—No chemical compound will be admitted unless information be furnished regarding tests for identity, purity and strength, and, if a synthetic compound, the rational formula.

Rule 3.—No article that is advertised to the public will be admitted; but this rule will not apply to disinfectants, cosmetics, foods and mineral waters, except when advertised in an objectionable manner.

Rule 4.—No article will be admitted whose label, package or circular accompanying the package contains the names of diseases, in the treatment of which the article is indicated. The therapeutic indications, properties and doses may be stated. (This rule does not apply to vaccines and antitoxins nor to advertising in medical journals, nor to literature distributed solely to physicians.)

Rule 5.—No article will be admitted or retained about which the manufacturer, or his agents, make false or misleading statements regarding the country of origin, raw material from which made, method of collection or preparation.

Rule 6.—No article will be admitted or retained about whose therapeutic value the manufacturer, or his agents, make unwarranted, exaggerated, or misleading statements.

Rule 7.—Labels on articles containing "heroic" or "poisonous" substances should show the amounts of each of such ingredients in a given quantity of the product.

Rule 8.—Every article should have a name or title indicative of its chemical composition or pharmaceutic character, in addition to its trade name, when such trade name is not sufficiently descriptive.

Rule 9.—If the name of an article is registered, or the label copyrighted, the date of registration should be furnished the Council.

Rule 10.—If the article is patented—either process or product—the number and date of such patent or patents should be furnished. If patented in other countries, the name of each country in which patent is held should be supplied, together with the name under which the article is there registered.

Boston Medical Library.—The meetings of this society, in conjunction with the Suffolk District Branch of the Massachusetts Medical Society, was held at the Library, March 1, on the general subject, "The Surgery of Renal and Ureteral Calculi." Dr. B. F. Harrington was in the chair. Dr. J. H. Cunningham, Jr., spoke on the actual results of cases at the Boston City Hospital. Dr. Hugh Cabot reported the results obtained at the Massachusetts General Hospital. Dr. H. F. Hewes spoke on the diagnosis of renal calculi from examination of the urine, and Dr. Benjamin Tenney discussed other means of diagnosis. Dr. Paul Thorndike approached the subject from the point of view of the operation for renal and ureteral stone.

On March 8, the last meeting of the Boston Medical Library, in conjunction with the Massachusetts Medical Society was held. Dr. Geo. W. Gay presided. Dr. John H. McCollom gave a long and interesting report of nine years' experience in the treatment of diphtheria with antitoxin at the South Department of the Boston City Hospital. He first went over the history of the disease, the discovery of antitoxin, the violent opposition to it at first and its gradually increasing use. By means of carefully prepared charts, he demonstrated the wonderful results in lowering the former frightful mortality in this disease. He spoke at length on the relative merits of intubation and of tracheotomy in cases of laryngeal diphtheria, showing results by means of charts. Both operations were discussed and described. Antitoxin, dosage effects, and the resulting skin lesions were carefully described. The

effects on house officers and nurses of their stay in the infectious wards was spoken of.

Prof. William T. Sedgwick, of the Massachusetts Institute of Technology, next spoke on the Present State of Opinion Concerning Sewer Gas and its Effects. He spoke of sanitation and its history, the rivalry between the two schools, headed respectively by Koch and by Pettenkoffer, of Munich, and the effects of the teaching of these schools on the subject of sewers and sewer gas. He described the advancement of house sanitation up to a certain stage; then the sudden sickness of a very prominent family in a dwelling where the plumbing was defective, the results of this on the public mind, and the marked reaction that followed ending in the putting up of sewer gas as a cause of almost any disease. At present in the minds of quite the majority of people a normal state had been reached, and the public realized as well as the profession that, first, there is no such thing as sewer gas, a distinct entity, and, second, that air from a sewer is not necessarily and usually is not found to be more impure or as impure as air found in most dwellings to-day.

In the discussion that followed these two papers, Dr. Thomas M. Rotch told about the results of the use of antitoxin in the children's and the infants' hospitals, and described how the present state of affairs had been reached, whereby it was considered best to give antitoxin every twenty-one days to every patient entering the hospital.

Dr. David Cheever, in a most interesting five-minute talk described the changes that had taken place during his own professional career in the treatment of diphtheria. Dr. F. H. Williams spoke on the subject of tracheotomy versus intubation, advising the former in cases in the country far from skilled medical help, and when careful nursing and watching could not be obtained.

Dr. Charles Harrington spoke on the subject of the cause of the dread of sewer gas. He thought that the Pettenkoffer school was not at all to blame for this state of affairs, but that it was due to an unfortunate coincidence.

The Isthmian Canal Commission's Mismanagement in Sanitation.—Dr. Charles A. L. Reed, on his return from Panama, March 1, filed his report with the Secretary of War, and the report is printed in full in *Journal A. M. A.*, March 11. Dr. Reed states that he has given every facility to study the condition of organization and the details of administration as they relate to the public health interest. He says that he was impressed with the efficiency and zeal of the sanitary staff and with the fact that much has been accomplished in the way of sanitation, but states that much remains to be done which can not be done unless better facilities are afforded. He states that the governments of Panama and of the United States both recognize the importance of efficient sanitation. At the meeting of the commission held at Ancon, August 28, 1904, Mr. Grunsky, as the committee on a proposed health department, presented a report, which began by stating that "After repeated conferences with" Colonel Gorgas and with practically the entire sanitary staff, "it has been agreed," but which should have stated that "in certain important particulars Mr. Grunsky has agreed with himself," for much of the report was formulated over the respectful protest of the medical men who were invited to the conference. By this report, the commission, more especially Mr. Grunsky, provided for the creation of a board of health, with power to formulate regulations, which would become effective only after approval by the Commission, or, in cases of emergency, only on approval of the governor of the canal zone. Thus the chief sanitary officer had his discretion limited to the enforcement of regulations which had first been adopted by the Commission or by a board of health, in which latter event it had to be sent generally to Washington to be endorsed by the Commission, or, in cases of emergency, might be approved or rejected by the governor of the zone. It thus came about, says Dr. Reed, that the chief sanitary officer whom, and whose department, the medical profession had asked to be made largely autonomous, and which the President himself had obviously intended to be so, became, by action of the Commission, more especially of Mr. Grunsky, subordinated to the governor of the zone; to the chief disbursing officer; to the chief of the bureau of material and supplies; to Mr. Grunsky; to the Commission; to the Secretary of War; to the President; subordinated, in fact, in the seventh degree from the original source of authority, and this, says Dr. Reed, is the state of affairs on the Isthmus to-day. Dr. Reed states that if the superintendent of the Ancon Hospital makes a requisition for supplies, he must take it for approval to the chief sanitary officer; then to the governor of the zone; then to the chief disbursing officer; whence it goes to the Commission at Washington; then to Mr. Grunsky as committeeman; then back to the Commission; then, if allowed, bids are advertised for; awards are made; the requisition is filed under the supervision of a purchasing agent notoriously ignorant of the character and quality of medical and surgical supplies; the material is shipped to the Isthmus; consigned to the chief of the bureau of material and supplies; who notifies the disbursing officer; who notifies Colonel Gorgas; who in turn notifies the superintendent; who applies to the quartermaster—"the boss of a corral—for transportation, and so much of the stuff as in the judgment of the first, the governor, next the chief disbursing officer, next the Commission, next and more particularly Mr. Grunsky, ought to be allowed to the superintendent of the hospital, finally arrives or does not arrive at its destination, and this, Dr. Reed says, is no fanciful picture; and what is true at Ancon Hospital is true at Colon, at Culebra, at Miraflores, and at all other points that require supplies of this description. In case of emergency, certain purchases are permitted to be made at Panama, but, of course, at greatly increased prices. Dr. Reed cites examples of the littleness of the Commission, showing how the Commission consumed its time with the minutiæ of administration that ought to have been intrusted to the men employed for that purpose. Dr. Reed states that the Commission visits on the sanitary department unnecessary and unreasonable restraints and confronts it with petty antagonisms, and he quotes instances showing how requests for necessaries have been treated. For instance, doors and windows for the hospital at Culebra were asked for in January, but are not in place. Materials for disinfection work were asked for last September; the Commission, more especially Mr. Grunsky, cut the estimate down to one-fourth, and sent the material in small lots from time to time. The Commission established interneships in the hospitals in the zone, incumbents to be paid $50 a month, the same salary that is paid to nurses, and in this way the sanitary

department is without a sufficient number of experienced medical men. Before Colonel Gorgas went to the Isthmus he laid before the Commission a plan of campaign, which embraced the following distinct features: First, the installation of a sewer system in the cities of Colon and Panama. Second, the installation of water supply in those cities. Third, the cleaning of the streets, including the disposal of garbage and night soil. Fourth, general sanitation of houses, including their cleaning and fumigation and the drainage of neighboring pools, the abolition of water barrels and cisterns, and other places for the propagation of the yellow-fever mosquito. Fifth, the prompt isolation of all cases of yellow fever. It was not until after four or five months had elapsed, however, and only after progressive development of yellow fever that Colonel Gorgas was permitted by the Commission to assume the sanitary control of the two cities, one of which, Panama, having by this time become very generally infected. Contrast this with the brilliant results achieved by Colonel Gorgas in Havana, where he was given not only a free hand, but his own purchasing and distributing agents. The report states that the responsibility for the present existence of yellow fever on the Isthmus can be placed nowhere else than on the Canal Commission, especially on Mr. Grunsky. It is also stated that the campaign against malaria has been thwarted by the Commission, that many employees are sick with malaria, and that both nurses and attendants are frequently victims of the disease. An effort has also been made by the Commission, under the subterfuge of establishing a training school at Ancon, to get undergraduate nurses to go to the canal zone at about the same rate that is paid pupil nurses in the training schools of the United States. Dr. Reed says that the Isthmus is not a place to take untrained nurses on any pretext, for nothing but fully developed talent in the various departments of activity should be sent to the canal zone. Dr. Reed concludes his report as follows: "I have the honor not only to submit the suggestion, but really to urge, that the time has arrived when the President ought to redeem his word, and ask for the resignation of the Commission."

OBITUARY.

Dr. GEORGE F. KEENE, superintendent of the Rhode Island State Hospital for the Insane, died at his home, in Howard, last week, from pneumonia complicated with Bright's disease.

Dr. E. J. HOWE, one of the best known physicians in Newark, N. J., was found dead in bed at his residence, March 14. His death is ascribed to apoplexy. He was about fifty-five years of age.

Medical Director GEORGE A. BRIGHT, U.S.N., retired, died in Washington last week, at the age of sixty-seven years. He was born in Maine, and entered the naval service from that State in May, 1861. He served on the South Carolina in the Gulf squadron and North Atlantic squadron from 1861 until 1864, was on the New Ironsides in 1864-1865, and the Marion 1865-1866. He was in charge of the naval hospital in Washington from 1895 until 1899, when he was placed on the retired list with the rank of rear-admiral.

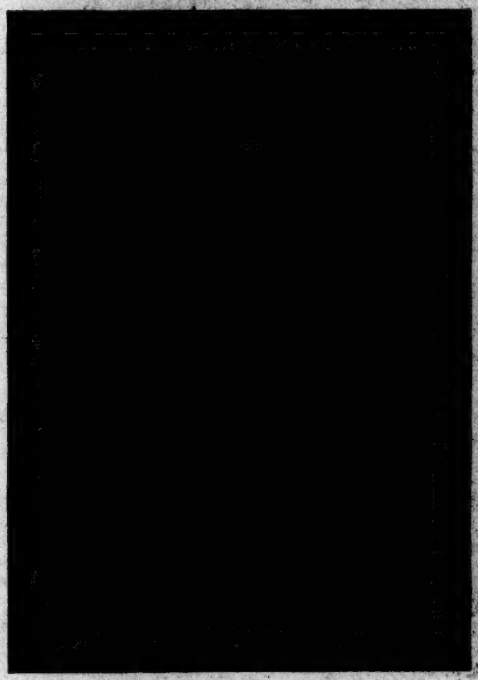
Word has been received from Omaha, Neb., of the death there of Dr. HENRY CLAY VAN GIESON, who for twenty-five years was a well-known physician of Paterson, N. J. He was born in Paterson on October 18, 1839. He was graduated from the New York University in 1861, and afterward studied medicine, being graduated later from Bowdoin College, Brunswick, Me. He served as assistant surgeon in the United States navy through the Civil War, and then took up the practice of medicine in Paterson, but, after residing there for a quarter of a century, removed to Omaha.

SPECIAL ARTICLE.

DR. OSLER AND THE CHARAKA CLUB DINNER.

THE Charaka Club gave a dinner at the University Club on Saturday evening, March 4, in honor of the member who was to leave them in May, Dr. William Osler.

To indicate this, the menu was in the form of a small pamphlet, entitled, "Folia of the Charaka Club," and bore on the title page the portraits of



Charaka and "Baba" Osler side by side, while further on in its pages was an old print of Sir Thomas Browne, who is Dr. Osler's especial medical saint. The title page of the Folia announced "A Record of Things once said (and not regretted) by Dr. William Osler." The succeeding pages consisted of excerpts from Dr. Olser's latest book, "Equanimitas;" also a list of the Osler and of the Charaka Bedside Library, and of the "Special Charaka Real Fifteen."

A special souvenir of the dinner was a bronze medallion of Osler with an inscription on the back, "The Charaka Club to Dr. William Osler, medico illustri, literarum cultori, socio gratissimo. March 4th, 1905."

The walls of the room were decorated with old prints and mezzotints of old doctors—mostly over sixty and all over forty years. The members of the

Charaka Club, and several invited guests from this city, Baltimore and Philadelphia made up the gathering.

Dr. Dana presided, and showed a series of portraits illustrating the reincarnations of Osler from Charaka down through Galen, Avecenna, Nostradamus and others to Dr. Dover, Buccaneer.

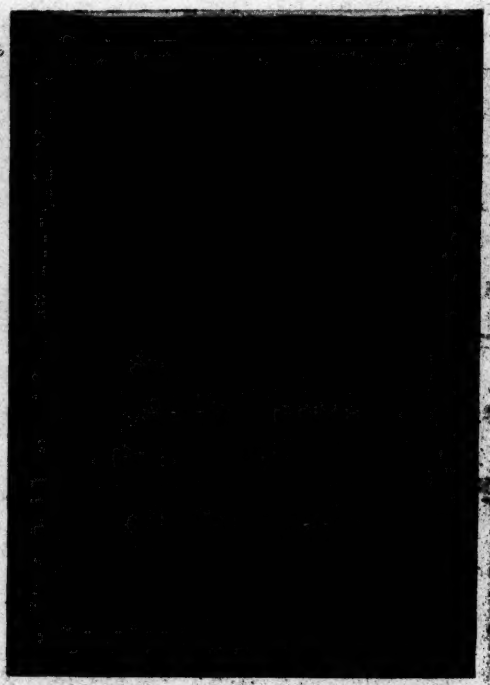
Dr. Frederick Peterson read telegrams of felicitation:

"Lahore, Punjab, March 4, 1905.

"*To Charaka Club, N. Y.*

"May a million golden moons disillusion the declining years, and a holocaust of roses strew the ambiguous pathway, of our most venerable and heaven-born Chela, Dr. William Osler.

"BABA CHARAKA, M.D."



A second was from St. Petersburg.

"To Charakoff Clubowich, New York.

"Havsky readoff Oslerowich forty sixty damsky.

"MAXIM GORKY."

From Pekin came the following:

"To Chalaka Club, N. Y.

"Best legards Plofessor Osler. Flaid we got go topside no chlololform. Head chop chop.

"GIN SENG,

Physician to Dowager Empress of China."

The Geheimjustitsrath Zauberwurst, of Jena, cabled to the Charakische Klub as follows:

"Gelungen. Haben schon zwei hundert Deutsche Aertze—besonders Neurologen und Pathologen—Osleriziert. Glückliche Idee!"

Dr. B. Sachs spoke for Charaka himself, Dr. Jos. Collins spoke on the Disadvantages of Learning, Dr. Gerster spoke on Education, concluding with the distich of Ausonius, written by himself on himself, at the passage of his ninetieth year:

"Nonaginta annos, baculo sine, corpore toto
Exegi, cunctis integer officiis."

"Without a staff my ninetieth year have I passed,
With body whole, its functions intact to the last."

Dr. Geo. L. Walton, of Boston, read or chanted a poem to the tune of "Tommy Atkins," to which all sang the chorus. One of the verses is as follows:

"It's open house he keeps in Franklin Street,—
You can lunch with him at any time you say,—
Then back he goes to duty like the ancient Therapeutæ
And we hope he gets his thirteen pence a day."

Dr. Dana then introduced Dr. Weir Mitchell as "The greatest of our American men of medicine and men of letters." Dr. Mitchell responded with a little personal sketch of his friendship for Dr. Osler, from the time when, a youth in years but a man in experience, he first came to Philadelphia and took the chair of Medicine at the University of Pennsylvania. He then read a poem on friendship, entitled "Books and the Man," from which the following verses are abstracted:

"When the years gather round us like stern foes,
That give no quarter, and the ranks of love
Break here and there, untouched there still abide
Friends whom no adverse fate can wound or move;
But are old friends the best? What age I ask
Must friendship own to earn the title old?
Shall none seem old save he who won or lost
When fists were up or ill-kept wickets bowled?
But if the oldest friends are best indeed,
I'd have the proverb otherwise expressed.
Friends are not best because they're merely old,
But only old because they proved the best."

Dr. Osler's speech in acknowledgment of the ovation given him was in the nature of a short story of his professional life, told simply and eloquently, and ending in warm appreciation of the friendship and good fellowship shown him. It was a heart to heart talk which won him warm applause and congratulations. The dinner closed without chloroform or even allusion to it.

SOCIETY PROCEEDINGS.

NEW YORK NEUROLOGICAL SOCIETY.

Regular Meeting, held January 3, 1905.

President, *pro tem.*, J. Arthur Booth, M.D., in the Chair.

Case of Graves' Disease in a Child.—This case was presented by Dr. J. Arthur Booth. The patient was a girl, thirteen years old, whose family history was negative. Her parents were both healthy, and there was no history of any degenerative disease in either branch of the family. The child had suffered from measles, whooping-cough and scarlet fever in infancy. She had never had a convulsion. There was no history of fright, nor could any other etiological factor be discovered. Eighteen months ago, that is, when the child was eleven years old, the exophthalmus was first noticed. Six months later the enlargement of the thyroid became noticeable, and during the past year all her symptoms had become more aggravated. The exophthalmus and thyroid enlargement were very marked, as well as the tachycardia, the pulse ranging from 120 and 140 per

minute. In addition to these symptoms, there was tremor, general nervousness, sweating and insomnia; also occasional headaches. Dr. Booth said the interesting feature of the case was the early age at which the disease had manifested itself. It was usually observed between the fifteenth and the twenty-fifth or thirtieth year. There were four other children in this patient's family, who were all enjoying good health.

Adenoma of the Pineal Gland, Occluding the Aqueduct of Sylvius, with Escape of Cerebrospinal Fluid Through the Nose and Perforation of the Frontal Horn of the Right Lateral Ventricle.—This case was reported by Dr. Adolf Meyer. The patient was a male. In 1894, when diving, he struck the top of his head. Following this, he complained of headache. He became blind in 1898, with chiasma symptoms. In 1899 he had transitory attacks of numbness on the left side of the face, leaving out part of the area of the middle branch. From that time there was difficulty in moving the lower jaw toward the left. There was no atrophy of the masseter. In August, 1900, cerebrospinal fluid began to drip from the right nostril, with considerable relief of the general symptoms. On the few occasions when the flow stopped, the patient would become sleepy and stuporous for two or three days. During May and October, 1902, the patient, who was then twenty-two years old, had several general convulsions. It was during that year that he was presented by Dr. Meyer at one of the meetings of the New York Neurological Society. In January, 1904, death occurred in a status epilepticus. The only permanent symptoms had been weakness of the left side of the jaw, a small area of loss of pain sensation of the lower corner of the mouth, and subjective numbness in the left side of the tongue. The gait remained normal; the knee jerks were both increased; there was no clonus. At autopsy a tumor was found in the form of an adenoma of the pineal gland. It had pressed itself through the roof of the midbrain behind the posterior commissure, protruding into the third and fourth ventricle and displacing the posterior corpora quadrigemina; the adenoma had practically no sand and but slight pigmentation. The right lateral ventricle had a funnel-shaped depression in the anterior end, with a perforation through the cortex. In the case reported by Wollenberg (*Arch. f. Psychiatrie und Nervenkrankheiten*, 31, p. 206) there was a tumor of the occipital lobes, but there was no occlusion of the ventricle to help account for the perforation. In connection with the case reported by Dr. Meyer, photographs made by Dr. C. I. Lambert were presented, and Dr. C. B. Dunlap demonstrated some microscopic sections.

Dr. Meyer, in reply to a question, said the only motor symptoms the patient presented were those of the masticatory segment, which showed in the deviation of the jaw to the right whenever the mouth was opened. In other words, there was a weakness of the left pterygoid muscles. It was impossible to demonstrate any atrophy of the masseters. There was no motor symptoms referable to the upper extremities.

Case of Old Fracture Dislocation of the Spine.—This case was presented by Dr. J. Ramsay Hunt. The patient was a man forty-five years old, a laborer. Twenty years ago he had a venereal sore followed by a suppurating bubo. He received internal medication for one month. No secondary symptoms were noted. He has had numerous attacks of gonorrhea, followed by the development of strictures. At present a stricture of small caliber existed in the membranous portion of the urethra. In 1895 he met with a severe accident, falling three stories through an airshaft. He was unconscious for a few minutes, and was taken to Bellevue Hospital in an ambulance. Following the accident, he complained of severe pains in the back, and both legs were paralyzed, although not completely, as he could move them slightly in the bed. It was necessary to catheterize him a few times after the injury, but this difficulty soon passed away. After the accident an angular deformity of the spine was noted, which still exists. It was located about the level of the twelfth dorsal vertebra, and it was safe to assume that the spine had suffered a fracture-dislocation at that point, and that the spinal cord had been injured at the same time. After remaining in bed for two months, the legs began to improve. This improvement continued, and six or seven months later he was able to resume his occupation as a truckdriver, a laborious one, which necessitated the lifting of heavy weights. One year after the injury he was able to do a full day's work, and was suffering no pain or inconvenience. He admitted however that his legs were not quite as limber nor as strong as they were before the accident. He could not run as fast as formerly, owing to a slight stiffness in the knees. There was no sensory nor vesical symptoms during this period. For four years or more the patient remained in this condition. He drove a truck, and led the vigorous outdoor life of a laboring man. About three years ago there developed, very gradually, symptoms of trouble in the lower extremities. He began to complain of sensations of numbness and cold in the feet and legs, accompanied by stiffness and weakness. Upon stooping, he felt a numbness in the lower portion of the back, extending down the posterior thighs and legs. During the past two years these symptoms had progressed slowly and steadily, without any sudden exacerbation, and without acute pain. The left leg was weaker than the right, and it was important that this was true of the initial paralysis and the long period of disability during convalescence. At present the patient's condition is as follows: He had a well-marked kyphosis, the tip of which corresponded to the twelfth dorsal vertebra. Corresponding to this, there was a posterior bilateral band of hyperesthesia at the same level. The spinal column was fairly mobile, and was not tender to direct pressure or on jarring. There has been no change in the degree of the kyphosis since the accident. There was spastic paraplegia of the lower extremities, with the spasticity and clonus more marked on the left side. Babinski's phenomenon was present on both sides. The skin reflexes were present, and there were distinct objective sensory disturbances in the lower extremities, including touch, pain and temperature, more pronounced on the right side. The man was able to stand fairly well with his eyes closed. He had considerable difficulty in urination, with occasional incontinence. He also complained of sharp, painful sensations and prickling down the posterior aspect of the thighs and legs, and on stooping he felt numb from the hips down. His sexual power was apparently unaffected. Coarse myokymic twitchings were present in the back below the level of the lesion; also in the buttocks, thighs and legs, especially their posterior aspect, after exertion and exposure to the cold. Occasionally during the past year he had sharp, shooting pains in the course of the sciatic nerves, causing reflex movements in the legs; these were more pronounced on the left side.

Case of Fracture Dislocation of the Spine, Causing a Unilateral or Partial Lesion of the Cord.—This case also was presented by Dr. J. Ramsay Hunt. The patient was an elevator operator, twenty-two years old, who about two months ago fell six stories with his elevator. He was unconscious fifteen minutes after the fall. He was removed to the Gouverneur Hospital,

where it was found that he had suffered a fracture dislocation of the spine, the deformity corresponding to the eleventh and twelfth dorsal and the first and second lumbar vertebræ. In addition there was a fracture of the internal and external malleoli of the left ankle-joint. The case was seen by Dr. Hunt six weeks later, through the courtesy of Dr. John Rogers. At that time there was an oval area of anesthesia to touch, pain and temperature over the anterior and lateral surfaces of the right thigh. The right knee-jerk was absent; the right Achilles-jerk was present and not exaggerated. The left leg was weak and spastic, with clonus. The Babinski reflex was not elicitable on either side. A girdle sensation was felt in the lower abdominal region, especially on the right side. There was difficulty on urination. Dr. Hunt said the case was a good example of a unilateral or partial lesion of the cord, resulting from a fracture-dislocation of the vertebræ.

The interesting features of the first case were the recovery from the initial paralysis, the long interval of comparative normal function, during which period a laborious occupation was practiced, and then the gradual reappearance of cord symptoms referable to the same level of the cord. The progression of the disease had been most insidious, but always steadily advancing, and of such a nature as to suggest a very gradual compression of the spinal cord. It seemed reasonable to infer in such a case that the cord was undergoing gradual compression in the spinal canal, already narrowed by the fracture dislocation, and produced by an osseous outgrowth (chronic proliferating osteitis) plus pachymeningeal thickening and adhesions. Spinal syphilis or chronic inflammatory changes within the cord could be excluded, Dr. Hunt believed that surgical measures should betaken to relieve the marked symptoms of compression.

Dr. Joseph Fraenkel, in the discussion, said it was rather difficult to decide the exact nature of the lesion in Case I. shown by Dr. Hunt. Pressure on the cord due to an osseous lesion he thought would give rise to more severe symptoms than were present in the case, and he suggested the possibility of a post traumatic hematomyelia.

Dr. Hunt, in closing, said that in studying the case, the possibilty of a posttraumatic syringomyelia had been considered, as well as syphilis, or a chronic inflammatory condition of the cord, originating at the site of the old injury. The theory that symptoms followed a hematomyelia he thought could be discarded from the fact that such a lesion was generally found in the gray matter of the cord, and that it would have given rise to dissociate sensory symptoms. In the first case shown it is true there were coarse myokymic twitchings but no atrophies and no dissociate sensory symptoms. The symptoms were those of a gradual compression of the cord. In cases where the compression was of insidious onset, sharp pains were often absent. In the case shown there were pains of sufficient severity to suggest involvement of the posterior roots. The differential diagnosis was important in cases of this character, Dr. Hunt said, because of the treatment. The symptoms were growing progressively worse, and if they were the result of compression, osseous or otherwise, the advisability of an exploratory operation was worthy of consideration. This would be decided the speaker said, on further observation and after an X-ray picture had been taken of the area involved.

Diffuse Cauliflower-like Puckering of the Cortex in Arteriosclerotic Epilepsy.—Dr. Adolf Meyer demonstrated a brain that he had obtained through the courtesy of Dr. M. C. Ashley, of the Middletown State Hospital. The specimen showed a form of vascular affection, principally of the cortical terminals, in a patient fifty-five years old. This patient gave a history of having had syphilis at the age of twenty years. There was mental deterioration, with epilepsy, for twelve years, and slowly progressive left hemiplegia during the last year of life. The small vessels of the pia in the affected regions were generally and diffusely occluded.

The lesions affected principally the occipital lobes; the The lesions affected principally the occipital lobes; the temporal and parietofrontal regions were also affected, leaving, however, intact the convolutions bordering on the Sylvian fossa. The case belonged to a group of which Dr. Meyer had described two instances in the Pathological Report of the Illinois Eastern Hospital for the Insane at Kankakee, in 1896. The condition was frequently called diffuse sclerosis, but presented a distinct variety of a progressive disorder of middle life or senescence, akin to the cases reported by Pozzi, Hess, Prout, Blackburn and probably also by Greiff. The term cirrhosis was used instead of sclerosis because the latter referred more to the broader lesions taking in the white substance, whereas cirrhosis, as applied to the kidney and liver, directed the attention more to the parenchymatous portions, and in this case to the cortex itself.

Dr. T. P. Prout said that in one case he had observed where the early history was obtained, it was found that it belonged to the realm of the infantile cerebral palsies, upon which epilepsy was subsequently ingrafted. This was the light, the speaker said, in which he had during recent years come to regard these cases. The epilepsy was ingrafted upon an early cerebral palsy, in the same way as we saw it ingrafted upon other brain lesions.

Dr. Fraenkel said he had seen quite a number of cases in which epileptiform seizures developed late in life, accompanied by some mental deterioration. The diagnosis was of importance, because in a younger person such a condition would be regarded as a general paresis. It was interesting to study the onset of these seizures, which could usually be differentiated from those of ordinary epilepsy by the slight focal symptoms.

Dr. Meyer, in closing, said he did not think it was justifiable to assume an infantile lesion in these cases, because it was possible to demonstrate all degrees of more recent and older foci, with numerous granule cells. In reply to the suggestion made by one of the speakers to call these cases pseudoparalysis, Dr. Meyer said this would be apt to involve them in the general confusion of that term, which for a while stood for the cases of general paralysis on a demonstrable syphilitic basis, but which we had since learned to recognize as the backbone of that disease from the etiological standpoint.

The following officers were elected for the ensuing year: President, Dr. Joseph Fraenkel; First Vice-President, Dr. J. Arthur Booth; Second Vice-President, Dr. Smith Ely Jelliffe; Recording Secretary, Dr. J. Ramsey Hunt; Treasurer, Dr. G. M. Hammond; Corresponding Secretary, Dr. F. K. Hallock.

A New York Physician Knighted.—The King of Italy, at the recommendation of the Italian Minister of Foreign Affairs, has made Dr. Antonio Fanoni, of New York, a knight (chevalier) of the Order of the Crown.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, held December 12, 1904.

The President, T. E. Satterthwaite, M.D., in the Chair.

Mucous Colic.—Dr. R. C. Kemp read a paper on this subject. As to the pathology of this affection, variously known as mucous colitis, pseudomembranous enteritis, membranous colitis, tubular diarrhea, etc., he said that except in rare instances mucous colic is engrafted on a catarrhal colitis, it is the consensus of opinion that no inflammation exists. Microscopically the membrane discharged consists of a structureless matrix with columnar epithelium, and its chief constituent is mucus. Dr. Kemp's investigations have led him to believe that the principal factor in the etiology of mucous colic is ptosis of the colon with associated gastroptosis. In ten cases examined by him, enteroptosis was found invariably associated with gastroptosis. Enteroptosis and associated gastroptosis, with gastro-intestinal disturbances and auto-infection, he places as the factors of mucous colic, and the neurasthenia so commonly met with in these cases as the result of the auto-infection. He considers, therefore, that mucous colic is one of the manifestations of Glenard's disease. In the treatment, consequently, proper abdominal support he regards as a most important feature. Other means, however, should not be neglected, and he gave in detail the methods he employed both during the attacks of colic and in the intervals.

Dr. William H. Thompson, in the discussion, said he knew of scarcely any trouble which was so vexatious both to the patient and the physician. This is particularly the case because the condition is specifically characterized by low spirits, and if it lasts for any length of time in a woman it is accompanied by an appalling variety of distressing symptoms. The most important point is the etiology, and what has most impressed him is the one story of chronic constipation, lasting perhaps ten, fifteen or twenty years. It is not difficult to understand that the continued or repeated presence of what may be termed a foreign body (the hardened feces) in the intestines must have a most pernicious effect upon the innervation of the whole alimentary tract. This, then, is the primary and most common cause, resulting in the production of auto-infection and toxemia. Here we have the reason why the disease has so often been pronounced a neurosis. Instead of being a primary neurosis, however, it is the local condition which causes the neurotic trouble so frequently present. Other factors, in exceptional instances, are such exercises as excessive horseback and bicycle riding. In the treatment great assistance may often be obtained from the replacement of the displaced stomach and bowel, just as relief from distressing symptoms may be secured by the replacement of a displaced uterus or kidney. As to drugs, probably the best results may be obtained from the use of castor oil as an alterant, in doses not exceeding one-half drachm. To this may often be added with advantage asafetida, or sodium benzoate.

Mucous Colic and Gastroptosia.—Dr. A. Rose remarked that one author had said of gastroptosia: "The descriptions in the books of the symptoms of gastropsia are hopelessly obscure and chaotic; characteristic and diagnostic points are few and misleading." To this may be said: The symptoms in gastropsia are indeed manifold and numerous, but if we keep in view that there is only one factor, and that this factor is relaxation, we have a characteristic and diagnostic point which is not misleading, but indicates at once a rational method of treatment which in most, if not all, cases will cause the symptoms to disappear or to become ameliorated. This applies to some extent to mucous colic, which is not a disease *sui generis*, but is, at least as far as Dr. Kemp's and my own observations go to show, one of the manifestations of gastropsia. By this term should be understood abdominal ptosis, atony, or relaxation. For scientific as well as for practical purposes it is best to employ Greek terms in our onomatology in their original meaning. The question whether gastroptosia is the cause of mucous colic in all cases will have to be decided by further observation. While some writers have paid attention to the coexistence of gastropsia. Gastropsia is very frequent and mucous colic is rare, but this does not exclude the fact that mucous colic may be one of the many kinds of manifestations of gastroptosia. The relation of certain ailments to gastropsia has been recognized only since abdominal strapping has been practised. Dr. Rogers and Dr. Rose found that cases of dysmenorrhea in which uterine flexions or ovarian troubles existed along with gastroptosia were promptly relieved by this strapping. Relief of gastroptosia was relief of dysmenorrhea. German colleagues, who during the last two years have made extensive use of the strapping, state that this method did better service in many instances of uterine flexions than all the pessaries. Gastroptosia in women does not always cause dysmenorrhea, nor in men and women always mucous colic; but mucous colic, as well as dysmenorrhea, may be caused by gastroptosia. Gastroptosia is very often the cause of disorders of circulation, as well as of nervous disturbances, and these disorders may in some instances cause mucous colic and in others dysmenorrhea. The relief of gastroptosia, therefore, is relief of mucous colic and relief of dysmenorrhea in the cases in which such relations exist. In Germany it was Dr. Walther Clemm who introduced what Dr. Kemp has named the Rose belt. What is thought of it may be learned from a paper by Dr. Weissmann, of Lindenfels, in which he says: "There exists a large number of chronic cases going from Pontius to Pilatus, and not a small percentage of their ailments is connected with gastropsia. Physicians should, in cases of gastric disorder, neurosis, neuralgias, look for gastric atony, because they may, in many instances, relieve their patients from persistent and painful sufferings by means of the simple Rose belt."

Appendicitis and Intestinal Obstruction.—Dr. Robert Abbé opened a discussion on this subject with remarks on Obstruction Following Operations for Appendicitis, which were illustrated by diagram. The subject, he said, was one of growing importance. In his private practice during the last few years there had been ten cases of which he had exact notes, and it was upon this personal experience that he would base his remarks. It was an accident which no doubt occurred more frequently than was generally realized, as the symptoms resulting from it had formerly been attributed to other causes. Out of the ten cases, he had been able to save seven, and all would certainly have proved fatal had not timely operative interference been made. The obstruction is a mechanical one, and usually occurs in the form of a simple adhesive band. Formerly it no doubt resulted more frequently from the appendectory itself than is now the case. This was due to the elaborate "toilet of the peritoneum" which was then considered necessary. Fixation of the intestine was liable to result from the presure of the iodoform gauze employed. At the present time, however, a simple washing out with saline solution is believed to afford

the best results. Drainage is abandoned to a large extent, and hence one cause of the accident has now been eliminated. In the cases under consideration no such gauze application was employed. The date at which the obstruction commenced was as follows: On the second day, one case; fourth day, two cases; fifth day, one; sixth day, one; twelfth day, one; in one week, one; in five weeks, one; in two months, one; in seven months, one. In one case that had come to his knowledge, the obstruction did not occur until after five years.

Symptoms.—The patient is supposed to have made a good recovery from the operation, when suddenly a new train of symptoms make their appearance. They do not have, however, the intensity of those caused by a strangulated hernia. First there is colicky pain, usually referred to the navel, which may come on gradually and have sharp exacerbations. The countenance becomes ashen, the eyes hollow, and the tongue furred. Usually there is albuminuria, and then anemia. All these symptoms are due to the circulatory condition, a capillary anemia, probably associated with cardiac weakness. The colicky pain, if long continued, is apt to be associated with vomiting. Such is the case if there is a kink in the intestine. With simple adhesions, the vomiting occurs later. Experience has shown that black vomit is not necessarily a fatal sign. From the local condition we might expect asymmetry of the abdomen, but this is not usually the case. As a rule it is dome-shaped. In such cases the search for indican in the urine is a waste of time. With pain, swelling of the abdomen, hiccough and regurgitation, there can be little question of the existence of intestinal obstruction. Loss of desire for food is one of the earliest signs. If the abdominal wound is unhealed, the secretion of the wound becomes altered. This is not because there is a septic wound, but is due simply to the loss of secretion resulting from the general circulatory condition.

Prompt Operative Interference Demanded.—in from two or three days to an unlimited period after the operation, as has been seen, the obstruction may come on. The average time is five days to three weeks. As time goes on, the chances of intestinal obstruction become less. It is interesting to know whether acute obstruction can be overcome without operation. In exceptional instances it may. One such, the case of a girl of fourteen years, in whom the obstruction developed on the fourteenth day after the operation for appendicitis, was mentioned. This is not the rule, however, and the earlier the operation, the greater the chances of success. Up to the second day almost every case can be saved, and the great point therefore is to operate early. In nine out of Dr. Abbé's ten cases the obstruction was located near the caput coli (within two feet of the ileocecal valve). An adhesive band was found there, and when such a band is divided, the contents of the intestine are at once allowed to pass down, and the patient is usually safe. In one case, however, a second operation was required, as it was found after the first that there was another adherent stricture of the intestine lower down. Before operating it is always well to empty the stomach with a tube. It is important to remember that, notwithstanding the existence of a stricture near the ileocecal valve, a patient may sometimes pas feces and gas; these coming simply from the colon. After an obstruction has lasted more than two days a case may not do well, even if operated upon. The gut may by that time have become so thickened and altered in character that it cannot be restored to its normal condition. In operating for appendicitis the chances of a subsequent intestinal obstruction will be diminished if as large an amount of saline solution as possible is left in the abdominal cavity.

Intestinal Obstruction Following Attacks of Unoperated Appendicitis.—This was the title of a paper by Dr. C. A. McWilliams. He has been able to collect 33 cases reported in medical literature.

Dr. Algernon T. Bristow said that personally he had met with only one or two cases of intestinal obstruction following the operation for appendicitis, and this had also been the experience of his colleague, Dr. George R. Fowler, who had operated more than two thousand times. The symptoms of obstruction, as described by Dr. Abbé, were practically those met with in septic peritonitis. The important point to note was that these symptoms occurred in a patient previously doing well, while in the case of peritonitis they occurred in one doing badly. In some cases of angulation of the intestine, Dr. Bristow had had good results from the formation of an artificial anus. This was done under local anesthesia with cocaine, as he did not deem it safe to use a general anesthetic.

Dr. Carl Beck said that not so very long ago intestinal obstruction was regarded as an unknown quantity, and that even twenty-five years ago any attempt to remove such obstruction by operation would have been condemned by the profession. He spoke of the diagnosis of interstitial adhesions from distended gall-bladder and other conditions, and said the X-ray had proved useful in his hands. In certain chronic cases of adhesion characterized by extensive cobweb-like formations, of which he had seen three or four instances, the prognosis was very bad.

Dr. Forbes Hawkes said that in the differential diagnosis between sepsis and adhesive bands the condition of the right rectus muscle was of importance. When bands are present there is a much greater amount of rigidity. As to the danger of causing adhesions by the leaving of gauze in the abdominal cavity for drainage, he thought this could be practically obviated by placing rubber tissue around the gauze. Before operating for appendicitis it was always good practice to thoroughly clean out the lower bowel, for if that were done, even a small movement after the operation indicated that peristalsis was renewed and that the proper function was established.

Dr. Robert T. Morris said that Dr. Abbé was to be congratulated on his results, which were certainly much more favorable than the average. He felt, as Dr. Bristow felt, that cases of strangulation occurred frequently, and he believed that such could be relieved by means other than operative. His plan of treatment consisted of (1) massage, (2) posture (elevation of the hips), and (3) the use of ergot. In many cases of postoperative ileus these three agencies would save the patient's life. Frequently he had seen within thirty minutes pronounced evidences of the relief afforded by them. In his hands this mode of treatment had proved practically more successful than operation, and he had seen cases relieved by it which would ordinarily have been operated upon.

Annual Meeting, held January 9, 1905.

The President, T. E. Satterthwaite, M.D., in the Chair.

Report of the Statistical Secretary.—This showed a membership of 657.

Professional Responsibility in the Diagnosis and Care of the Insane.—Dr. A. C. Brush read a paper on this subject. The responsibility for the early recognition of insanity, he said, clearly rests with the general practitioner. Insanity has never been successfully defined, and wisely the law of this State

makes no attempt to define it. It has, however, established a well-defined line between responsibility and irresponsibility from insanity and other causes. It is the duty of the family physician to detect abnormal mental processes in the young, and advise proper mental and physical means for their correction. The classification of insanity is purely clinical, except in the case of general paresis. The Kräpelin classification, imperfect though it be, is an improvement over the older ones. Dr. Brush adopted this in describing the diagnosis of the various abnormal mental conditions which form the basis of the insane condition.

What the State of New York is Doing for the Insane and for the Advancement of the Science of Medicine.—This was the title of a paper by Dr. Frederick Peterson. Having referred to the duties of the State Commission in Lunacy and of the medical officers of the hospitals, he said that there are no better public hospitals for the insane than those of New York, and no others where at the present time more purely scientific and medical work is being done. During the past three years, under the direction of Dr. Meyer, director of the Pathological Institute on Ward's Island, much attention has been paid to the matter of stimulating new medical interest among the 130 physicians constituting the staffs of the 14 State Hospitals. Courses of lectures and demonstrations have been attended not only by the assistant physicians, but also by the superintendents of these institutions. In addition, Dr. Meyer and his assitants have spent some time at each hospital, working over clinical and pathological material with the staff. The accumulation of the elaborate histories now made must become of incalculable value to investigators in psychiatry; but quite as important is the fact that the very work of the preparation is an education to the young men performing the service—stimulating their understanding, improving their powers of observation, and sharpening their scientific judgment. The practice of having staff meetings once or twice a week, for the discussion of conditions of patients and for the presentation of new and interesting data in the domain of medicine, has become general. Nothing has been spared in the way of well-equipped working medical libraries or of making each institution equal in facilities and modern appliances to any general hospital. Where these hospitals are located sufficiently near to large towns or cities, consulting boards of medical men, active in various specialties, have been secured in order to bring the members of the staffs into relation with all lines of medical progress. The result of all this has been to make each hospital a nucleus for a large amount of genuine clinico-pathological work. Each has on its staff both a salaried ophthalmologist and dentist, and over a thousand nurses have now been graduated from the hospital training schools. It is designed to have as soon as practicable a psychopathic reception hospital in connection with each of the State hospitals situated in or near a city or large town. The concluding part of the paper was devoted to an enumeration of some of the improvements which have been made in the treatment and care of the insane, particularly as regards the amelioration of their condition.

Dr. C. F. MacDonald, in the discussion, said that a wide difference was recognized by all between the medical and legal definition of insanity. In the code of criminal procedure the law does not concern itself, except as regards the commission of some crime, and confines itself explicitly to the question of responsibility. The tendency is always to cling to precedents. Medical men are fully aware that not infrequently the very insane know perfectly well the abstract difference between right and wrong, and especially is this the case with paranoiacs. But medical science says that it is not a question of the recognition of right and wrong, but of the ability of the individual to resist the impulse to do wrong. The medical and legal definitions of insanity, therefore, are widely different. Dr. MacDonald said he differed somewhat from Dr. Brush as to the definition of insanity. Many of the definitions which have been brought forward have been mere attempts at condensed psychological descriptions, and are impracticable. For the purpose of teaching psychiatry to students and medical practitioners he would say that insanity is a disease or disturbance of the brain in which there is a prolonged departure from the individual's usual methods of thinking, feeling and acting. This disease may be functional, as well as organic. The important point to be recognized is that an insane person, however robust he may appear, is always suffering from a disease of the brain. Insanity is therefore characterized by mental derangement. Our lawmakers have entrusted to the medical profession the power of depriving individuals of liberty by declaring them insane. Hence it is very important that the practitioner should be familiar with the prodromata of insanity, for it is in the early stages that the most can be done in the way of treatment. By the inauguration of early and appropriate treatment confirmed insanity can often be prevented. The stage of *alteration* always precedes the stage of *alienation*. It is therefore most essential, in determining insanity in its early stages, to compare the patient with himself, and thus see if there is a prolonged departure from his usual methods of mental operation. It is a common notion that there is a general standard, any deviation from which constitutes insanity. This is not the case, however. Every individual must be judged from his own personal standard. In obscure and doubtful cases, therefore, it is very important to determine what the normal standard of the individual is as regards heredity, environment, habits, etc. Hence, in the matter of early diagnosis, the great importance of this method of comparing the patient with himself, in order to determine whether there is any prolonged departure from his usual manner of conducting himself. As regards classification, he said he had not been able to accept that of Kräpelin. He thought it open to more objections than some of the older ones. He had been accustomed to regard those as the best which were founded on the mental symptoms and had substantially as their basis the old classification of Pinel. As far as he was aware, that of Kräpelin had not as yet been generally accepted by alienists.

Dr. Adolf Meyer said that as a rule hospital physicians were very anxious to make advances in the scientific character of their work, and he believed that on the whole the medical profession underrated the value of what was being accomplished in the State hospitals. It was to be said, however, that during the period of strenuous economy in the State administration the hospital staffs had been so reduced in numbers that the physicians in these institutions labored under a great strain. There were not enough of them to properly carry on the work required of them. The effort was being made to

train the hospital physicians both in autopsy and clinical work. If adequate records are kept, the autopsy findings can be carefully compared with the conditions that existed during life. In this respect he said he had met with a great deal of encouraging enthusiasm in all the State hospitals. The matter of classification he thought was now constantly being regarded as of less and less importance. For commitment a diagnosis is not necessary. It is the mental and physical symptoms that are required—the facts of the case. Among the facts most important to ascertain is the question of deterioration. Hence, one of the principal points to investigate is whether the condition present is likely to require the permanent care of the State or whether the case is a recoverable one. Classification is, therefore, not essential. What we want is facts, facts which will enable us to prognosticate as to the future and to determine the kind of care required.

Dr. E. D. Fisher said it was fortunate that Dr. Peterson was able to speak from a double standpoint, that of the interne and that of the administrator of hospitals. He was, therefore, peculiarly well adapted to present this subject. From his personal knowledge he could verify all that Dr. Peterson had said of the immense improvement which had taken place in the practical care of the insane, the hospital equipment, and the class of physicians during the last few years. The Pathological Institute has accomplished a most admirable work. In former years the asylum physician was not on a par, as regards scientific attainments, with the outside alienist. There had also been a great improvement in the dietary of the patients during the incumbency of Doctors MacDonald and Peterson in the Lunacy Commission. This was a very important point because there was always exhaustion in insanity, and hence he thought extravagance in the matter of food would be decidedly preferable to parsimony. He felt very much inclined to agree with Dr. Meyer that the hospital staffs were not sufficiently large, and that the physicians were consequently overworked. As to local boards of managers for the State hospitals, he had been very much opposed to their abolition, and he was glad to hear that the present Governor proposed to restore such boards. He hoped that the measure would go through. Boards composed of intelligent persons of high standing in the community, he thought, were especially desirable for the hospitals outside of New York City. In these State hospitals the care was excellent, and he would much prefer to have a patient treated in one of them rather than in a private sanitarium at a charge of $15 to $20 a week, or even more. In regard to the classification of Kräpelin, he would be disposed to agree with Dr. Macdonald that it would not be advisable to accept it absolutely.

Dr. W. M. Leszynsky said it was pleasant to compare the present with the past, when superintendents were appointed on account of their political pull. In former years there was a constant cry of improper management in the city hospitals for the insane. Even before the establishment of the State hospitals, however, there had been a great improvement, and this had steadily continued down to the present time. He thought that if Dr. Peterson's paper could be widely promulgated it would have an excellent effect in removing the prejudice which now exists in the minds of many in regard to the State hospitals.

Dr. E. C. Dent said he was a thorough believer in the Kräpelin classification. He thought that in the future it would be productive of admirable results, and even at the present we are able by means of it to make better classification. He realized very keenly that there were some drawbacks to Kräpelin's theory, but he felt assured that in time these would be overcome. At the present time it was quite impossible to make a perfect classification. It would take a long time to arrive at definite conclusions. He believed he voiced the sentiments of all the other superintendents in stating that very considerable progress had been made at the State hospitals under Dr. Meyer's guidance. Furthermore, the Commission in Lunacy invited all the medical profession to visit the various hospitals and give the physicians in them the benefit of their advice. He quite agreed with Dr. Meyer that the staffs were too small. In some of our best hospitals there were not half enough physicians to properly do the work called for. The examination of patients often necessarily consumed much time, and there was a great deal of clerical work required in carrying out the present methods. In conclusion, Dr. Dent gave a brief summary of the history of the care of the insane in New York City. This, he said, showed what progress had been made, and it was a slow and gradual evolution. One of the essentials of proper treatment was good nursing, and a great advance had been made in the establishment of training schools for nurses.

Dr. R. T. Morris thought that in the line of progress came the idea of having a competent surgeon on the staff in the hospitals. In every large assembly of the insane there is a certain percentage of cases (not large, it may be) which can be cured by surgery. That is, before neurotic habits have been established—after this has occurred it is too late to act. He did not claim that psychoses were caused by surgical lesions, but he believed that certain psychoses were *precipitated* by such lesions. He would not operate except in cases where an operation was demanded on the ground of common humanity. In illustration he mentioned some cases in his own practice. One was that of a patient suffering from melancholia who had auto-intoxication dependent on a floating kidney. As soon as fixation of the kidney was done the melancholia was promptly cured. There were a number of major psychoses and a great many minor psychoses in which he believed an operation would be of service. In reply to Dr. W. V. Hayes, who inquired whether neurasthenia with depression might not result from surgical operations, Dr. Morris said it was a fact that insanity is sometimes precipitated by an operation, and particularly hysterical insanity.

Dr. Brush said that the law does not attempt to define because the medical profession does not, but it has to define responsibilty and non-responsibility. He had adopted the Kräpelin classification because it was the latest and seemed to him the best. In some cases it had given him great assistance.

Dr. Peterson said that, as to the matter of diet, a few years ago Dr. Flint was authorized to devise a schedule, and this was used for some time. Subsequently a ration recommended by Professor Atwater was adopted. This proved too great a reduction, however, and still later a combination of the two was tried. This had proved adequate, and was still in use. In reply to Dr. Morris he would say that a whole volume might be written of the surgery dur-

ing the past year in these institutions. In the Manhattan State Hospital, West, no less than 150 capital operations had been performed. Doctors Bryant, Bickham, and other well-known surgeons were in attendance, and operations were done because operations were indicated. As to the inquiry of Dr. Hayes, he said that insanity was especially apt to follow ovariotomy, and particularly double ovariotomy. In undertaking such operations, therefore, he thought the question of insanity should always be taken into consideration.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held December 14, 1904.

Pneumonia, Typical and Atypical.—Dr. C. S. Williamson read a paper on this subject. After discussing briefly the onset in the typical cases of pneumonia, the author discusses in detail the aberrant forms where the onset does not directly point to the lung.

1. *Abdominal Cases.*—It is a comparatively old observation, but one which has been but little heeded, that pneumonia frequently begins with sharp abdominal pains. This fact was first impressed upon the author by seeing a distinguished surgeon operate a case for supposed salpingitis, because of intense pain in the lower abdomen, the case dying within twelve hours and the autopsy revealing no abdominal or pelvic disease, but a double croupous pneumonia. The commonest group of these abdominal cases are those where the pain and tenderness are localized at McBurney's point for the first two or three days (appendicular form). He agrees with Massalongo as to the frequency of this form in childhood. In other cases the pain is localized to the gall-bladder region, and may mimic biliary or even renal colic or gastric ulcer for the first twenty-four or thirty-six hours. It is not justifiable to recognize, as some foreign authors would do, separate groups of cases in accordance with the localization of the pain at the onset. What is needed is not so much hyper-refinement of classification, but careful exploration of the chest by physician and surgeon before every abdominal operation. The explanation of these reflected abdominal pains is that the six lower intercostal nerves in their passage downward to the abdominal wall, give off filaments to the diaphragmatic, and possibly also the parietal, pleura. Irritation of these filaments may, by a well-known law, be referred to the end distribution of other branches of the same nerve.

2. *Senile Pneumonia.*—The author calls particular attention to the fact that the onset in old people is apt to be entirely latent. In some cases there is a chill, but very slight elevation of temperature. A chill occurring in old people without apparent cause should be always regarded as suspicious of pneumonia. In the terminal pneumonias the onset, frequently the entire course, is latent. In alcoholics the same statements apply.

3. *The Onset in Pneumonia Due to the Friedländer Bacillus.*—A small portion of cases of croupous pneumonia are due to the pneumobacillus of Friedländer. The clinical symptoms do not ordinarily differ from those of cases caused by the pneumococcus except in one important point, namely, in regard to the character of the sputum. In the Friedlander pneumonia the sputum is so characteristic that from it alone a fair diagnosis of the form of pneumonia may often be made. It is intensely mucoid, ropy, and stringy, and when lifted upon a knife-blade or similar instrument, it can be drawn out in long threads. This is a point which has hitherto escaped general observation. Attention is called to the fact that the Friedländer pneumonia may be readily recognized post mortem by observing the character of the cut surface. This, instead of being dry, as in the pneumococcus form, is bathed with a ropy, tenacious, rusty-looking mucus which is highly characteristic of cases produced caused by the pneumo bacillus.

4. *General Pneumococcus Infection.*—Very much rarer than the above cases, but much more important, are the cases where the onset is with a pneumococcus septicemia. The author quotes a case seen by him in consultation where the onset was with a bloody discharge from the nasopharynx and middle ear (through an old perforation in the drum), and where the lung findings were entirely negative. Examination showed a nearly pure culture of pneumococci in the bloody serum from the nasopharynx and the ear; the cultures from the blood revealed the pneumococcus in pure culture. Twenty-four hours later a pneumonia developed. In this case the march of events was undoubtedly that the infection occurred from the nasopharynx and ear, from which sources bacteria were taken into the blood to produce, several days later, a croupous pneumonia. Cases of this kind have a very great theoretical as well as practical interest, since they demonstrate, for some cases at least, the hematogenous origin of pneumonia.

Physical Basis for Diagnosis in Pneumonia.—Dr. Robert H. Babcock presented a contribution on this subject, saying that the pulmonary findings on which the diagnosis of acute croupous pneumonia may be based are determined by the pathological conditions within the lung, and as this latter varies much in extent and in character during the different stages of the process, the physical signs display corresponding differences in definiteness and character. There are three propositions, therefore, which he regards as fundamental to a correct understanding of the data furnished by examination of the chest in this affection: (1) The exudate is not necessarily lobar in extent, but may be lobular or patchy, and hence the objection to the term lobar pneumonia. This is especially true of this disease in children and old or debilitated subjects. It is ignorance of this fact that is responsible for the failure on the part of some practitioners to always recognize the disease in the class of cases referred to. (2) The inflammatory exudate does not always form rapidly and uniformly throughout the affected lobe, and hence three or four days may elapse before the exudate beginning deeply spreads to the surface so as to become clearly recognizable at the bedside. This fact accounts, he thinks, for many a disastrous delay in diagnosis, and hence has an important bearing on the treatment. (3) There may sometimes be a striking contrast between the severity of constitutional symptoms and the results of physical examination of the lungs. For this reason a practitioner should make repeated examinations of the chest early in the course of the affection. Later on frequent and careful examinations are also necessary because of the liability to extensions and the importance of their recognition. In fact, he believed the state of the lungs should be ascertained at each professional visit, since only by so doing can the physician have an accurate knowledge of what is going on.

Dr. Babcock then discussed the stage of engorgement, the stage of hepatization, mensuration, palpation, percussion, auscultation, and the microscopic inspection or examination of properly stained sputum. Recently he was asked to see in consultation a man of

sixty years who was suffering from cardiac insufficiency. He had been having a cough of chronic bronchitis, and two weeks ago was edematous. Treatment had improved his condition, but for the last three days he had been slightly delirious. He found a heart lesion, to be sure, but the pulse was only 96, and signs of stasis were not present. The thing that struck him at once was the character of the respirations, which were shallow and forty to the minute. Mouth temperature was normal, but in the rectum the thermometer registered 103° F. The lungs were then carefully examined, with the result that on the left posterior axillary line, not far from the scapula, was discovered a small patch of dulness, with increased resistance, slightly exaggerated tactile fremitus and bronchial breathing. On these findings a diagnosis of pneumonia was made. Without the loss of normal pulse respiration ratio, he should not have suspected acute pneumonia, but with this and the rectal temperature he was led to go over the lungs with more than ordinary care, and with the result just stated.

Cardiac and Renal Aspects of Pneumonia.—Dr. Arthur R. Elliott read this paper, saying that on the heart and kidneys rested the safety of the pneumonia invalid. Owing to special conditions imposed by the disease, circulatory considerations take precedence of all others in importance. General agreement exists that cardiac insufficiency is the usual cause of death. The author distinguished between symptomatic involvement of the heart and inflammatory lesions of the cardiac structure occurring as complications, and confined himself to a discussion of the former. Three forms of cardiac failure are observed in pneumonia, *i.e.*, collapse with a high temperature, collapse occurring at the time of crisis, or soon after, and collapse following exertion during convalescence. Various explanations have been advanced to account for the cardiac collapse in pneumonia. The author proceeded to discuss the various theories, taking up serially the ideas of von Jürgenson, regarding the importance of pyrexia in bringing about circulatory crisis, the importance of the direct action of pneumococcus toxins in the production of cardiac asthenia, the effect upon the heart of the obstruction of the pulmonic circulation in causing right heart paralysis, and the vascular theories of Romberg and Passler and Rolly. Blood pressure observations in pneumonia were analyzed, and the author concludes that heart failure is probably due to several causes, the principal of which are vasomotor paresis, paralyzing distention of the right heart, and the direct action of toxins on the myocardium. The clinical signs of cardiac collapse were next reviewed, and attention was drawn to the importance of studying the pulse and pulse respiration ratio in pneumonia. A pulse in the adult of over 120, and in children of over 130, especially after the first day, is of bad omen, although no arbitrary rule of prognosis can be followed in interpreting the pulse. Delirium and coma in association with high pulse rate is grave. A dicrotic, irregular pulse occurring at the height of the disease is a bad omen; occurring after the crisis it is of less note. Attention was directed to the great clinical value of the pulmonic second sound as furnishing a reliable indication of the state of the right heart. The author briefly discussed the renal aspects of pneumonia, regarding which but little information is current. Pneumonia complicating Bright's disease is frequent, but acute nephritis as a complication of pneumonia seldom occurs. One is not warranted by experience in ascribing to the pneumococcus any more important influence in the production of nephritis than is possessed by other infective organisms. Cloudy swelling and other slight degenerative changes have been noted in the kidneys in a majority of cases of pneumonia examined, and more or less albuminuria is observed during the course of the disease when systematically tested for. Statistics show the association of a high death rate, and albuminuria probably because of resulting renal inadequacy. From this standpoint albuminuria may be regarded as an unfavorable development. Pus, blood and casts in the urine point to mycotic endocarditis or a local pneumococcus infection of the kidney. Other urinary considerations are of less importance.

Regular Meeting, held January 25, 1905.

The President, John B. Murphy, M.D., in the Chair.

The Therapeutic Use of the X-rays: Three Years After.—Dr. William Allen Pusey read a paper on this subject. Reference was made to his contributions on this subject in 1900, 1901, and 1902. He reviewed the subject and his cases treated at that time by means of the X-rays, and undertook to estimate from the results the therapeutic limitations and possibilities of this agent. Its use for the permanent removal of hair had not equaled his early expectations, as in his experience the results were only satisfactory in 50 per cent. of the cases, and even to obtain these requires long treatment. In sycosis and tinea sycosis the results of the X-ray were exceedingly satisfactory. Acne offers a good illustration of the value of the X-ray. He has treated a large number of cases of acne and his results have been very satisfactory in most cases. Occasionally there may be recurrences of the lesions, but even when relapses occur the cases are amenable to treatment. X-ray treatment in cases of acne, however, must be carried out with great care. He has not seen unpleasant after-effects from the rays in this condition. His results in rosacea had been quite as satisfactory as in acne. However, some of these cases show a slight tendency to relapse, but the ultimate outcome is satisfactory. He reported one ugly, stubborn case that had practically remained well for three years without treatment. The X-ray in chronic inflammatory dermatoses has been valuable, particularly in eczemas of the hands. Satisfactory results have also been obtained in chronic indurated eczema of other parts. It relieves itching, but occasionally fails to do so. In subacute or chronic inflammatory disease of the skin, such as psoriasis and lichen planus, the effect of the X-ray is markedly beneficial. However, it does not offer striking advantages over other methods of treating these conditions. In pruritus ani and vulvæ he has not seen the benefit from the use of the X-ray mentioned by other observers, and he is not sure that any case has been permanently cured. In pigmented and vascular nevi his experience with the X-ray in a few cases has been favorable. As to keloid and scars, there has been no return of the keloid in one case for two years after treatment. He has treated successfully eight or ten typical keloids, most of them being on the chests of women. His experience in treating lupus vulgaris with the X-ray corroborates that of other observers, namely, that it is of great value. He mentioned one case that failed to heal satisfactorily with the X-ray, and this was a lupus of the face which occurred after an extensive plastic operation. The results from Finsen's method are good, but the author says he can duplicate any of the results obtained by the Finsen method with the X-ray. He believes that the X-ray has decided advantages

over Finsen's light method. He has had considerable experience in the treatment of tuberculous glands of the neck. In the treatment of cervical adenitis without involvement of the skin, he has succeeded in many cases in reducing the size of the glands and by long-continued treatment has caused them to diminish almost to the point of disappearance. In other instances he has not observed much improvement. In cases of cervical adenitis in which there was involvement of the skin, the results were more positive. The X-ray in tuberculosis of the joints seems to have no appreciable effect in his experience, although in some positive benefit was noted. In blastomycosis his experience with the X-ray, extending over half a dozen cases, has been uniformly favorable. He has treated successfully by this method two large suppurating papillomatous tumors, one over the knee, one on the thigh. The patients were women, and had resisted other methods of treatment for two years. In a case of actinomycosis of the jaw, the patient having been referred to him by Dr. Ochsner, X-ray exposures combined with twenty grains of iodide of potassium, t.i.d., were followed by complete and permanent resolution in a few weeks. His results in treating superficial epitheliomas and cutaneous carcinoma have been satisfactory, with some failures. In 19 cases out of 20 of epithelioma of the lower lip, referred to him by surgeons, there was no palpable involvement of the glands. Nineteen cases gave healthy scars, and all of the 19 patients are well. He discussed at length the use of the X-ray as a therapeutic measure in cancer of the neck, pseudoleucemia and leucemia. He has treated a number of cases of goiter with the X-ray without any benefit. He has not been able to convince himself that the use of the X-ray is of any value in the treatment of goiter.

Treatment of Lymphatic Leucemia with the X-ray.—Dr. Joseph A. Capps and Dr. Joseph F. Smith contributed a joint paper on this subject, which was accompanied by numerous tables and charts. The first case of leucemia treated by the X-ray was Dr. Pusey himself. The patient was treated for one month, but did not show improvement, probably because the treatment was not carried on long enough. The patient refused further treatment. Fresh interest was aroused on the subject in 1903, when Dr. Nicholas Senn reported a case of leucemia symptomatically cured. Dr. Senn had given the essayists permission to follow out the case. When first seen by Dr. Senn, patient presented the typical symptoms of splenomyelogenous leucemia, and had been ill for fourteen months. Treatment was begun daily and every other day by Dr. Senn, through the latter part of January, February, March, April and May, and at the time of Senn's last observation, the white count came down to 10,000, and the spleen was almost of normal size. This does not mean, however, that the disease itself was cured, although the patient felt perfectly well. Patient was subsequently treated by the X-ray, but died later with symptoms of toxemia apparently, and not from an X-ray burn, as one might suppose.

Another case of splenomyelogenous leucemia is still under treatment. The first case of lymphatic leucemia they had seen reported was treated by Dr. Pusey for several months, and improved symptomatically, but patient died in ten months. It was a chronic case.

Another case of lymphatic leucemia was reported by Senn in an article on Hodgkins' disease. The case was followed for a time, was much better under X-ray treatment, but died in about seventeen months.

A case treated by Churchill, an infant, died in a comparatively short time, although the X-ray treatment had been faithfully carried out in this instance.

The authors reported three cases of lymphatic leucemia treated by the X-rays, two of which were of the acute form. In one case there was no effect on the blood or the glands. Patient died in six days. In a second case there was no effect on the blood or glands, and the patient died in ten days.

Of the subacute cases, there were two. In the first the blood showed improvement under the X-ray treatment; the spleen and glands diminished in size, but patient died in the course of nine months. While the X-ray exerted a beneficial effect, it did not control the disease. The second subacute case died in six weeks after treatment was begun. Better results were obtained in treating the chronic cases by the X-ray, and of these the author reported three instances.

In summing up, the authors stated that splenomyelogenous cases of leucemia should receive X-ray treatment, because they are greatly benefited. They respond more slowly than do cases of chronic lymphatic leucemia. These patients feel that they are cured, but in the light of Senn's case and of other cases reported as symptomatically cured, some of which have since died, physicians must not be too sanguine in regard to pronouncing cures. It is altogether probable that some of these cases are not cured, but that the process is held in abeyance. Oftentimes in leucemia the spleen will diminish in size and the blood count come down under X-ray treatment, and the patient, as far as the leucemia is concerned, is very much better symptomatically, but the disease reasserts itself always, and the case cannot be regarded as cured. The X-ray, in the opinion of the authors, exerts a wonderful modifying effect, and is a very good method of treatment for the alleviation of symptoms in cases of lymphatic leucemia and of splenomyelogenous leucemia, but probably it does not effect an absolute cure.

Dr. Oliver S. Ormsby, in the discussion, referred to cases treated in the laboratory and in the practice of Drs. Hyde and Montgomery. Their observations extended over three and a half years, and covered more than two hundred cases of epithelioma treated by the X-ray. The cases that had been relieved most perfectly were of the superficial rodent ulcer type. The results were uniformly good. In two cases there was a mild recurrence. They had treated nineteen cases of superficial epithelioma of the lip with excellent results. They had used the X-ray in over one hundred cases of psoriasis. It was a convenient and clean method to use, but they did not select the X-ray in all such instances. Psoriasis of the scalp could be removed with the X-ray without removing the hair. Their results in acne and acne rosacea were excellent. Brilliant results had followed treatment by the X-rays in cases of eczema. In seventeen cases of sycosis the results were good, one-half of the cases being entirely well. In two obstinate recurrences took place. In keloid their results in eleven cases had been the same as those mentioned by the essayist, Dr. Pusey. Thirty-five cases of lupus erythematosus were treated, combining radial with phototherapy, with excellent results.

Dr. E. A. Fischkin stated that in cases of sycosis they reacted beautifully to X-ray treatment. The same could be said of cases of keloid. He spoke

of the idiosyncrasy of different patients to the X-ray. He mentioned two patients who had psoriasis, a brother and sister being sick at the same time. It was about two years since psoriasis appeared in both instances. They were given the same treatment. The sister was cured after six or eight treatments, and it was now about two years since the last treatment was given, with no recurrence. The brother still had the disease. Although he had had over one hundred treatments, the psoriasis had increased all over the body. There was no evidence of cure of any of the lesions. This case illustrated that there is a decided difference in the reaction of patients to the X-ray.

Dr. R. R. Campbell stated that in two cases of blastomycosis which he had treated by the X-ray without the administration of iodide of potassium his results had been the same as those of Dr. Pusey. The cases of epithelioma of the lip he had selected for X-ray treatment were of the superficial type. In two cases out of twelve in which there was some slight induration he failed to get any beneficial results from the X-ray. When one had a case of epithelioma of the lip in which it became necessary to curette, he thought the domain of the X-ray ceased, and the case properly belonged to surgery. His results in lupus erythematosus had not been satisfactory with the X-ray. In lupus vulgaris, he believed the X-ray was eminently the best means of treating that form of tuberculosis. In acne his experience had been gratifying.

Dr. David Lieberthal corroborated what the other speakers had said in regard to the treatment of acne, lupus vulgaris, acne rosacea, etc., with the X-ray, as well as the results obtained. He emphasized the importance of carefully selecting and classifying cases.

Dr. Pusey, in closing, speaking of idiosyncrasy, stated that, contrary to the statements of some gentlemen, he had noticed a marked difference in the susceptibility of patients to the X-rays. The variation in individuals was so great that much care had to be taken in treating a lesion like an epithelioma.

Administration of Oxygen Gas.—Dr. H. J. Burwash read a paper with this title. He referred to a paper by Kellogg, of Battle Creek, Mich., entitled "Oxygen Gas Per Enema," which was published in 1887. In this paper Kellogg discusses at length experiments on guinea-pigs, showing that gas per enemata is readily absorbed, and that dark venous blood was noticed to be immediately changed into bright arterial blood by its application. He therefore recommended this method for the treatment of diseases of the liver and digestive organs. He reports many cases, nearly all being of digestive troubles. Dr. Burwash has made a new application of it by using it in the treatment of the acute respiratory diseases, particularly pneumonia. This method was first used by him in August, 1891, in a severe typhoid fever case, after failing to resuscitate the patient by the usual method by inhalation. The patient was a young girl, sixteen years of age, who, from the persistent high temperature, became profoundly toxic, delirious and cyanotic. The gas by inhalation did not appear to revive her from the stupor, and then it occurred to him to administer the gas per enema. He gave her one gallon; after two minutes' duration the respiration became more exhilarated, and the deep cyanosis turned to a beautiful pink condition. The patient recovered after a very protracted illness. Since that time he has continued to use oxygen per enema in all his critical cases, especially pneumonia. He mentioned two recent cases of pneumonia. The first was that of Mr. K., aged thirty-five years, brewery worker, who developed a double pneumonia of the apex on the one side and base on the other, in which the temperature varied from 103° to 106° F., rectal; the toxemia increasing, as a result the patient became delirious with extremely rapid respirations and weakened heart. About the sixth day of the disease the oxygen gas was used after the usual cold bath had been administered, which was necessary to reduce the high temperature. The bowels were first thoroughly evacuated by normal salt solution. The gas was administered for from one and a half to two minutes' duration hourly until the condition indicated the relief desired. At each administration about one gallon of the gas was consumed, though the amount used was determined by the patient's condition rather than by measure. Immediately following each administration the usual physical phenomena appeared. In this case the high temperature continued until the eleventh day, when the crisis appeared, and thereafter he continued to uninterrupted recovery. The administration of gas was continued until the heart's action was assured. He reported another similar case of pneumonia treated by oxygen gas, with recovery. Why does oxygen gas administered by the intestinal canal oxygenate the blood, and tissues so much more efficiently than when given by inhalation? It is plainly apparent that the introduction of a large quantity of oxygen gas into the intestinal canal not only neutralizes and deodorizers the noxious gases that are frequently present there, but also by this direct method introduces oxygen through the portal system to the liver, whose cells are not only stimulated to greater activity, but are nourished as well. Besides this, the already overcharged lungs are assited in their function of aeration of the blood by this condition of reenforcement.

Normal Salt Solution and Other Local Analgesics in the Office Treatment of Anorectal Diseases.—Dr. J. R. Pennington read a paper on this subject, in which he stated that recent discoveries and improved technic in the use of local analgesics obviate the necessity for patients suffering from hemorrhoids, fissure and many other forms of anorectal disease, to forego all business and social obligations, go to a hospital, take chloroform or ether, be operated upon and remain there for two or three weeks before convalescence. Such patients, with few exceptions, are now operated upon by him at his office. They then go home and return the following day or the day thereafter for their dressings, or return to their country homes. Before operating, if there are no contra-indications, about the only question he asks the patient is: Did your bowels move to-day? If so, and an operation is indicated, or necessary, and the patient so desires, he prepares the field and proceeds at once to operate, using either normal salt solution or eucaine-adrenalin solution as the local analgesic. Heinze, of Dresden, found that pure water alone is an intense irritant to the sensory nerves, and that anesthetic solutions diluted with it beyond a certain extent have the same effect, and render the injections painful. He also demonstrates that the addition of salt entirely obviates this source of irritation. Hence, it occurred to the author that a salt or some other isotonic solution would be a better agent than water with which to produce pressure or mechanical analgesia, as it is desirable that the

solution injected shall give as little pain as possible and also that it shall not be harmful to the tissues. Should it be desirable, as it is in some instances, especially when the injections must be made into the deeper tissues and the operation necessarily prolonged, to secure the specific action of some drug as eucaine or cocaine alone, or in combination with the distension of the tissues, he then adds to the salt solution a small quantity of eucaine and adrenalin chloride.

In internal hemorrhoids the salt solution is injected directly into the tumor until it becomes white, when it is grasped with a pair of forceps and the mucosa carefully divided down to the sub-mucosa; this tunic, which contains the principal blood vessels, is then ligated with a very fine ligature, and the major portion of the tumor cut off. As the lymphatics and circulating blood rapidly removes isotonic solutions from living tissues, the anesthesia is of short duration and the operation must be performed very quickly. In polypi the solution is injected into the base of the pedicle, a ligature thrown around it and the tumor cut off. Interno-external piles are treated similarly to the internal variety. In prolapsus ani the injection is made into the mucosa and deeper structures; sections of these tunics are then ligated and cut off. The author prefers a knife to the use of scissors as it causes less pain. The cases in which he has successfully employed one or the other of these solutions to produce local analgesia include radical operations for protruding and non-protruding internal hemorrhoids; interno-external, thrombotic and cutaneous hemorrhoids; polypi, anal prolapse, fistula, fissure, ulcerations, abscesses, sacral dermoids, lipomata, condylomata, and secondary operation for colostomy. It is important that the solution should be warmed to the body temperature. Rapid injections should be avoided, as sudden distension of the tissues may be painful; for the same reason neither solution should be used when too cold or too hot. Strange as it may seem, most cases complain of but little pain on the days after the operation. He has operated on seventy-five cases by this method of anesthesia, and presented a brief report of twelve, six of whom were physicians.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, held December 1, 1904.

The President, Richard C. Norris, in the Chair.

Chorio Epithelioma Malignum.—This paper was read by Dr. P. B. Bland. His patient was thirty-one years of age. One maternal aunt died of cancer of the uterus. The patient herself always enjoyed comparatively good health. She was married at eighteen years and had five labors. The first four were normal; the fifth occurred at the eighth month and was hastened or produced by sustaining a severe fall. Her symptoms began about four months after her last labor and six months before admission to the hospital. These consisted in more or less vague and indefinite pains in the lower portion of the abdomen, which were of a dull, aching, boring character. Two months prior to admission she suffered from a rather free, serous and offensive discharge which soon became tinged with blood. The bleeding progressively increased in intensity. Patient on admission was extremely pale and anemic and had lost considerable flesh. Examination revealed the uterus twice its normal size. It was more or less soft in consistence, the cervix was large and the os admitted the tip of the index finger. There was no palpable pathological alteration in the tissues outside of the uterus. The patient was prepared for operation, but before opening the abdomen the uterus was dilated and a nodular mass discovered in its interior. Some of this was removed and resembled so strikingly malignant disease that hysterectomy was decided upon and performed.

Morbid Anatomy.—The uterus was possibly two or two and one-half times its normal size; the enlargement was uniform. The uterine wall was thickened and showed changes found in subinvolution. Occupying the interior of the uterus on its posterior wall and in the fundal region, a large irregular nodular mass was found. This was of a greenish blood coagula color and of rather tense consistence. The nodules varied in size from a pea to a man's thumb. The mass did not show any line of demarcation between itself and the uterus, but apparently infiltrated the uterine wall to the extent of three-eighths of an inch. The ovarian vein of the right side was distended greatly by an organizing thrombus. A portion of this was protruding from the vessel after removal. Microscopical examination of sections of the nodules revealed the tumor to be a typical chorio-epithelioma. The patient was living and well eight months after the performance of the operation without any subjective manifestations of recurrence of the disease. The writer reviews the early history of chorio-epithelioma and believes from his observations and study of the genealogy, that there should be no controversy as to the nomenclature of these tumors. He believes, with Marchand, that they develop, as was recognized in his case, from the epithelial coverings of the chorionic villi, and, therefore, that chorio-epithelioma malignum is an appropriate term. He thinks, in discussing the pathology, that the line of invasion in chorio-epithelioma is distinctly characteristic of the tumor, differing from carcinoma in that it is soft, mushy and sloughing. In carcinomatous tumors the lines of invasion as is well known is hard, dense, and firm. He also spoke at some length of other neoplasms containing choriomatous cells, and believes with the late observers, that they should be classed with the teratoma and not considered as true chorio-epithelioma; for it would be better, he thinks, to adopt a nomenclature which would distinguish those closely connected with gestation and those arising independently of it. The author also discusses in detail the etiology of these tumors, reviewing all the theories thus far advanced as to their causation. He strongly inclines to Ehrlich's side-chain theory. The high type of malignancy exhibited by these tumors the writer also believes to be due to the time of its occurrence or its association with the preceding pregnancy. He discusses in full the symptoms and diagnosis of the condition, and also the prognosis. The latter, he says, is extremely grave. It is perhaps the most malignant of all tumors, occurring as it does during the full physiological activity of the patient, and with the physiological process of pregnancy, in an organ in which the blood vessels are greatly multiplied and enlarged, and, therefore, in a state highly favorable for the transportation of malignant cells throughout the body. The outlook for the patient suffering with this condition cannot positively be asserted, however, to be either good or bad, in view of the fact that spontaneous healing has occurred in some, and that even in extensive cases of metastases after removal of the primary site

of infection, patients have recovered. The treatment for the condition should be the same as for malignant disease elsewhere in the body—complete extirpation of the uterus in the field of healthy tissue at the earliest possible moment should be the only operative resource considered.

Dr. B. C. Hirst, in the discussion, said he had seen two cases of chorio-epithelioma, one of which began immediately after labor and ended fatally in three months. The patient had refused operation at first, later returned to the hospital soliciting it, but it was then too late. The second case was a metastatic tumor in the brain following hydatidiform mole from which the patient died about six months after expulsion of the diseased ovum. There was nothing in the intra-uterine examination to indicate malignancy. The most interesting question in this connection to the practical man is that of diagnosis. He had a case last year of which he had a good drawing. He was called to see a woman who had been bleeding off and on during pregnancy; she was delivered prematurely between the sixth and seventh month. Three or four days after delivery she began to bleed, and the hemorrhage continued so profusely that her physician thought Dr. Hirst would scarcely arrive in time. Dr. Hirst found the woman in a desperate condition. The vagina was packed, and she was sent to the University Hospital. In commenting upon the case the next day, he called the attention of the class to the causes of hemorrhage from the uterus after childbirth, and mentioned among the causes retention of some portion of the ovum, and, as the rarest of all causes malignant growth in the womb. He said, however, that while it was rare, it should be borne in mind, and if no other cause could be found malignancy should be thought of. He then proceeded to examine the interior of the woman's womb, and found to his surprise that he had removed with the placental forceps a curious brain-like material, which microscopically was most suggestive of malignancy. It looked exactly like the material removed from cases of adenocarcinoma of the endometrium. Specimens were submitted to three different pathologists. Two thought it was chorio-epithelioma. The third did not think it was, but as the history was so suggestive, and the appearance of the specimen under the microscope was so suspicious he recommended hysterectomy. On the advice of the three pathologists, and prompted by his own feelings, he removed the uterus. Inside of the womb, near the fundus, but not at the placental site, was to all microscopical appearances a well-developed neoplasm. He had this studied carefully under the microscope, and all the pathologists to whom it was submitted agreed that it was not a chorio-epithelioma, but they were unable to tell what it was. There was an infiltration of necrotic material and granulation cells, which formed a well-marked tumor extending above the endometrium about half an inch, and reaching into the myometrium about one-quarter of an inch. He had, therefore, removed the woman's womb on a diagnosis of chorio-epithelioma, and the operation proved to be unnecessary. Fortunately the patient made a good recovery. He cannot see how this mistake is to be surely avoided in the future. It is easy enough to make a diagnosis in well-marked cases that are already inoperable. What is wanted, however, is to make the diagnosis early. In the present state of knowledge, he does not see how this can be done with certainty. In every case of pathological condition of the endometrium after childbirth one may see the same multiplication of syncytial cells and the same inversion of the myometrium as in chorio-epithelioma, and no one yet has been able to tell me how to distinguish between the two. By the microscopical appearances of scrapings from a case of retained placental fragments the diagnosis of chorio-epithelioma might be justifiable. The only light there is, that, in addition to the microscopical findings, one must have a large, exuberant neoplasm in the uterus, profuse hemorrhage, evidence of erosion of the uterine wall, and, in addition, possibly metastasis. If, however, one waits for all these symptoms the operative results are not going to be particularly brilliant.

Dr. Bland, in closing, said that the diagnosis of chorio-epithelioma is somewhat difficult, but from the history of the case and the microscopical findings he thinks one should, as a rule, be able to make a reasonably positive diagnosis. One should not, however, depend upon the microscope alone, for the clinical manifestations are extremely valuable, indeed. To his mind a digital examination of the interior of the uterus would be the best means at command to establish the true character of the lesion, though he does not think, just as in other departments of medicine, an absolutely positive diagnosis could even be made by the execution of this procedure. A characteristic of the growth that should help one is that it is almost always in the fundal region and on the posterior wall. Moreover, the peculiar and characteristic conformation of the basal portion of tumor is so entirely different from other neoplasms that it in itself should strongly suggest the presence of this tumor.

Posttyphoid Ovarian Abscess and Suppurative Cholecystitis with a Gall-stone and an Intraperitoneal Abscess.—The subjects were treated by Dr. Barton Cooke Hirst. He said that the first patient was a young woman who was admitted to a Philadelphia hospital with the symptoms of typhoid fever. One month subsequently marked pelvic pain developed; two months from time of admission she was discharged. The pelvic pain continued for three months after leaving the hospital, when she consulted the writer. He found marked abdominal tenderness, fever, a weak, rapid pulse, and to the right of the uterus an inflammatory mass the size of an orange. A diagnosis of posttyphoid ovarian abscess was made, based upon the history and physical signs. Upon operation the ovary was found converted into a single-chambered cyst, which on bacteriological examination contained a pure culture of colon bacilli. The second patient was a young woman who had recovered from an attack of typhoid fever, three months previous to the author seeing her, she had noticed a lump below the ribs on the right side. On pelvic examination a retroverted uterus and prolapsed ovary were found. The following operations were done: Dilation and curettement, ventrosuspension, shortening of the infundibulopelvic ligament. The gall-bladder was incised, a stone and several ounces of pus were removed, an abscess in the peritoneal cavity below the gall-bladder was also evacuated. The patient made an excellent recovery. The pus was submitted to a bacteriological examination, and contained a pure culture of an unidentified bacillus of the colon group.

Dr. Müller, in the discussion, said that the typhoid bacillus is probably always an inhabitant of the gall-bladder during the attack of typhoid fever, producing a slight degree of cholecystitis in many cases, which disappears on subsidence of the attack, and requiring in the great majority of instances no treatment whatever. Sometimes suppurative cholecystitis occurs after typhoid fever, usually in a few weeks or months after the disease has subsided. In the last 55 bacteriological examinations in the German Hospital of bile aspirated

during operations, performed by Dr. Deaver, 32 cultures were obtained from the 55; seven of which were typhoid bacillus in pure culture; of the others, in 21 the colon bacillus was obtained; in three the staphylococcus, and in one streptococcus. The typhoid bacillus produces widespread lesions of the gall-bladder walls, cholecystectomy being invariably required in the cases examined. Histologically the gall-bladder shows ulceration of the mucous membrane, serous and cellular infiltration of the walls and a plastic exudate covering the serosa. In one case a fistula existed between the gall-bladder and stomach. He recalled an interesting case on the service of Dr. Frazier, at the Philadelphia Hospital, of a young girl of fifteen years who had had an attack of typhoid fever a year previously and entirely recovered. She became pregnant, was delivered at term, and two weeks afterward she developed symptoms of severe cholecystitis. Here to all appearances she was perfectly well, yet a calculus had developed within the gall-bladder, and did not give rise to trouble until a subsequent infection with the colon bacillus drove it into the cystic duct. In cases in which there is a distinct history of typhoid fever it is readily understood how the infection would be carried to the gall-bladder by the blood, either of the general or portal circulation. In the other cases to which he had referred there was no history of typhoid, yet there was pure culture of the typhoid bacillus found in the gall-bladder, and in these cases a consideration of the source of infection makes it evident that there is some point of focal necrosis within the intestinal canal, not sufficient to give rise to any intestinal lesion, from which the bacillus is carried to the gall-bladder by the portal circulation giving rise to the cholecystitis.

Exhibition of Specimens.—Dr. Barton Cooke Hirst presented these. The first exhibit is an illustration of that rather rare condition, myxomatous degeneration of an adenomyoma of the uterus. This is only the second case he had seen. Myxomatous change ranks among the rarest degenerations of fibroid tumors. Primary carcinoma of the clitoris is likewise rare. Carcinoma of the vulva anywhere is rare, but carcinoma of the clitoris is the rarest of all. He had seen six cases of carcinoma of the vulva and only one of carcinoma of the clitoris. Primary carcinoma of the vagina is also rare. In this case the disease attacked the posterior vaginal wall within the posterior commissure and extended two-thirds of the way up the vaginal canal, leaving the anterior third of the vagina free of the disease. The most interesting question in this connection is whether the uterus must in all cases be removed. He resected three inches of the rectum with the posterior two-thirds of the vagina, but did not remove the uterus. The remnant of the vagina was made into a narrow canal to carry off the menstrual discharge. The patient recovered from the operation, but has been lost sight of since.

Dr. A. J. Downes also exhibited specimens. The first one was a uterus which was removed from a woman sixty years of age. It shows the features which in some cases are considered to be inoperable. The woman came from the South, and in April last she had the first sign of hemorrhage after ten years cessation. She was examined by a doctor in the city. A correct diagnosis was made but advice given against operation. Then she consulted an eminent gynecologist in New Orleans, who made the same diagnosis and advised against operation. Dr. Downes saw the woman a short time ago, and she appeared to him to be in very good condition physically from general inspection. Upon examination he found a small mass protruding below what should have been the posterior wall of the uterus, extending an inch down on the posterior wall. The anterior lip of the uterus could be made out. By both vaginal and rectal examinations there was a fixed mass at the side of the cervix. Owing to the woman's good general appearance, he thought he would give her a chance by operation, and thereupon did a panhysterectomy. He first sterilized the vagina and did not touch it again. The fundus of the uterus was perfectly normal, the cervix was twice the size of the fundus. He removed the uterus through the abdominal incision without the use of a ligature, and the closing part of the operation consisted in clamping off the vagina and leaving it shut. Six months ago this would have been an easy operation and practically curable, for there was evidently no cancerous tissue left on the removal of this. This was taken out by the electrothermic clamp, the method of heat and pressure for hemastasis, and practically without loss of blood.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

Regular Meeting, held January 6, 1905.

Symposium on Immunity.—Dr. Welch opened the meeting with a brief historical résumé of the development of immunity. The question has always been of interest to medical men and immunity to a second attack in the case of certain diseases has long been known. The first example of experimental immunity was variolization which was successful but dangerous. Then followed Jenner's great triumph marking the first era in the history of the subject. Pasteur was able to show the possibility of vaccinating (or "Jennerizing," as Behring has suggested) against several organisms, particularly against anthrax and rabies. The scientific studies of Metchnikoff, leading to the phagocytosis theory of immunity marked the next epoch. Then followed Nuttall's work on the blood sera which resulted in the humeral theory. The discovery, by Roux and Yersin, of a toxin, and of an antitoxin by Behring cleared up the subject of antitoxic immunity, the production of which has only a restricted application (the best examples being diphtheria and tetanus). Following the work of Pfeiffer all the problems of bacteriocidal immunity were opened up and the "antibodies" (precipitins, agglutinins, etc.) began to take attention.

Production of Active Immunity.—This may be effected by the injection of organisms, living or dead (Jennerization) or by the injection of specific toxins. If micro-organisms are injected bacteriolytic immunity results; if toxins, "Giftfestigkeit" or "poison-proofness." In the latter case it must be possible to obtain soluble toxins and as this is only possible in the case of a few organisms (notably diphtheria and tetanus) this sort of immunity cannot always be produced. Immunity may practically be produced (1) by injecting germs alive and fully virulent (only possible when the animal is not very susceptible to the given germs). (2) By injecting attenuated cultures. This involves a risk and is not always applicable to human beings. (3) By injecting dead organisms. (4) By injecting toxins when these are obtainable. After the reaction caused by their injection the blood acquires a new bacteriolytic or antitoxic) property and immunity results,—an immunity which may be transferred with the transfer of the serum producing *passive* immunity. The second method is used in smallpox and rabies though the specific organism is known in neither

case. In the case of rabies it seems probable that the organism of the fixed virus is more virulent but less resistant than that of the virus of the streets. Statistics show a high though not perfect immunization possible for rabies. In animals similar immunization is possible against anthrax and (following Koch's investigations) against Rinderpest; and the pecuniary results from these discoveries alone outweigh all the outlay for scientific medicine since the world began. Trudeau, Smith, Behring and Pierson have shown that the bovine tuberculosis is more virulent than the human form and have undertaken to immunize animals by injecting the human disease. It has been hoped that human immunization might be possible if tuberculosis from cold-blooded animals were used. The injection of killed cultures has been attempted in typhoid, plague, cholera and dysentery, but with only a limited success. Wright, of London, has made extensive experiments in typhoid and the results have been definite but not uniform. The three requirements for this method of immunity are (1) assurance of success; (2) absence of serious dangers; (3) the presence in the community of a danger of general exposure to the disease. In smallpox alone are these requirements met.

Agglutinins.—These result when bacterial or other cells are injected into the animal body and they cause a clumping of these cells. They were first studied by Pfeiffer. Grüber and Grünbaum discovered the reaction in the case of typhoid fever but Widal, who published somewhat earlier, has had his name, quite unjustly, attached to the phenomenon. The reaction is of very great use bacteriologically, in the diagnosis of organisms and clinically in the diagnosis of disease. It is of great value clinically in typhoid fever. In other diseases clinical features make the agglutination reaction superfluous, or the reaction is inconstant or it does not occur.

Passive Immunity.—This was defined by Dr. Marshall as that type of immunity conferred by the injection of an immunized serum. The original immunity must be experimental, for natural immunity cannot be transferred. Antitoxin is a specific reaction product to the organism which unites with the toxin somewhat as acid and base; and the materials which destroy the toxins are not the same as those which destroy the bacteria in bactericidal immunity. Practically, passive immunity is best illustrated by the case of diphtheria, where the mortality has fallen from 50 to 15 per cent. by the use of antitoxin. Doses of 2,000 to 14,000 units should here be used and be given intravenously if the case is not seen early.

Hemolysins and Precipitins.—The former, said Dr. Stokes, are substances capable of separating hemoglobin from the stroma and their action is seen in the anemias of acute infectious diseases. Precipitins are substances formed after the injection of material into animals, capable of clotting the injected material. They are only specific for the injected substance and Nuttall has applied the precipitin reaction to forensic medicine in attempting to distinguish the blood of different species of animals in this way. Dr. Hemmeter referred to the early foreshadowing of Ehrlich's theory in the work of Emil Fischer, who called attention to the necessary configuration of enzymes in ferments and used a phrase to express this fact, which has since been a favorite of Ehrlich's: "Wie ein Schlüssel in das Schloss." The theory itself is so colossal that it is bound to meet opposition, but it is certainly a most satisfactory, if not an infallible, guide.

BOOK REVIEWS.

STUDIES FROM THE DEPARTMENT OF PATHOLOGY OF THE COLLEGE OF PHYSICIANS AND SURGEONS, Columbia University, New York. Vol. IX, for the Collegiate Year 1903-1904.

THIS characteristic volume again appears, gathering from the various periodicals the most important studies published by the workers in the pathological department of the university during the year, and giving evidence of great and varied industry. It forms a very desirable series of reprints, and the director is to be congratulated upon the appearance and significance of the new volume.

ESSENTIALS OF MEDICAL CHEMISTRY, Organic and Inorganic, containing also Questions of Medical Physics, Chemical Philosophy, Analytical Processes, Toxicology, etc. Prepared especially for Students of Medicine, by LAWRENCE WOLFF, M.D., Formerly Demonstrator of Chemistry, Jefferson Medical College; Physician to the German Hospital, of Philadelphia; Member of the German Chemical Society of Philadelphia College of Pharmacy, etc. Sixth edition, Thoroughly revised by A. FERREE WITMER, Ph.G., formerly Assistant Demonstrator of Physiology, University of Pennsylvania; Neurologist to the Out-Patient Department of the Hospital for Ruptured and Crippled, New York City. W. B. Saunders & Company, Philadelphia, New York and London.

THE fact that this book has reached its sixth edition in so short a time, will prove beyond a doubt its usefulness. Recent discoveries in physics and inorganic chemistry, almost epoch-making in their importance, have made a new edition necessary. The subject of organic chemistry, especially organotherapy and the substituted ammonias, has also been carefully revised and much new matter added.

BEING DONE GOOD. By EDWARD B. LENT. Second Edition. Brooklyn Eagle Press, Brooklyn-New York.

THIS cheerful volume in which Mr. Lent describes in a style worthy of Mark Twain his varied and thrilling experiences with doctors and remedies uncounted, during a protracted siege of rheumatism, deserves a place in the library of every man who ever had ache or pain. Its irrepressible, audacious humor could scarcely be so effective were it not for the accompanying conviction that genuine courage is at the bottom of it. A man might *entertain* with secondhand experiences, but this is a book which will not only amuse those in health, but lend real cheer and stamina to the sick, who find in it undeniable evidence of actual experience. One would like to add another topic to Mr. Lent's list of things by which the sufferer is "done good," and with the conviction that this little volume will be more efficacious than patent medicine or Spanish flies.

BOOKS RECEIVED.

MENTAL DEFECTIVES. By Dr. M. W. Barr. 8vo, 368 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

MEDICAL LABORATORY METHODS AND TESTS. By H. French. 12mo, 152 pages. Illustrated. W. T. Keener & Co., Chicago.